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Memo

To:	Daisy Douglass, USACE, Regulatory Seattle District	Project:	NWS-2021-477
From:	Theresa Price, Wood	c:	
Tel:	480-236-5087		
Email	theresa.price@woodplc.com		
Date:	October 14, 2021		

Subject: **JARPA Application Package Components**
Whitmarsh Landfill Site, Skagit County

On behalf of Skagit County, I am submitting the JARPA for the Whitmarsh Landfill Site (Project No.: NWS-2021-477). The full JARPA package consists of the following documents:

File Name	Description
20211014-TransMit	JARPA Transmittal Letter
20211014-JARPA.pdf	JARPA Form
20211014-PmtDrawings.pdf	JARPA Drawings (Sheets 1-6)
20211014-JARPAAttachA.pdf	JARPA Attachment A (Property Owners info)
20211014-JARPAAttachC.pdf	JARPA Attachment C (Contact info for Adjoining property owners)
20211014-JARPAAttachE.pdf	JARPA Attachment E (DNR Aquatic Use Authorization form)
20211014-WetDelin.pdf	Critical Areas Report
20141014-MitPlan.pdf	Mitigation and Maintenance Plan
20211014-SEPAMDNS.pdf	SEPA MDNS
20211014-CR.pdf	Archaeological Survey & Recommendations from RI-FS
20211014-BE.pdf	Biological Evaluation Form (USACE format)
20211014-HTLMemo.pdf	High Tide Line memorandum

If you have any questions, please contact me at the email address or phone number listed above.

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers ®
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
March Point Landfill Site Cleanup Action

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Gillaspy, Margo			
2b. Organization (If applicable)			
Skagit County Public Works			
2c. Mailing Address (Street or PO Box)			
1800 Continental Place			
2d. City, State, Zip			
Mount Vernon, WA 98273-5625			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(360) 416-1578			margog@co.skagit.wa.us

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Price, Theresa L.			
3b. Organization (If applicable)			
Wood Environment and Infrastructure Solutions, Inc			
3c. Mailing Address (Street or PO Box)			
3500 188th Street SW			
3d. City, State, Zip			
Lynnwood, WA 98037			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
(480) 236-5087			theresa.price@woodplc.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☒ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☒ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☒ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☒ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

9663 South March Point Road

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Anacortes, WA 98221

5d. County [help]

Skagit

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
	S02 and S03	T34-0N	R2-0E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

48.46275236° N / 122.52989635° W

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

P19676, P19684, P19713, and P19761
See Sheet 1 of 6 for project vicinity and general location.

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Quattro Properties	9628 S March Pt Rd Anacortes, WA 98221	P19687, P19712,P19677, P19675
Skagit Land Trust	PO Box 1017 Mount Vernon, WA 98273	P104357
Salish Trust	10043 S March Point Rd Anacortes, WA 98221	P119763
Swinomish Indian Tribal Community	11404 Moorage Way La Conner, WA 98257	P124181

5i. List all wetlands on or adjacent to the project location. [help]

Two wetlands are located within or adjacent to the project site:

- Wetland A (Estuarine intertidal; Category I estuarine)
- Wetland B (Palustrine emergent; Category II depressional)

See Sheet 2 of 6 for project overview and locations of wetlands and other waterbodies.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Swinomish Channel and Padilla Bay

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know Area of 100-year coastal flooding

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The project site has been significantly modified in the past, by landfill development and expansion over time, as well as installation of paved roads, railway, and industrial practices on adjacent properties. The current shoreline environment along the Padilla Bay inner lagoon consists partially of concrete and anthropogenic debris along the shoreline; invasive nonnative plants including Himalayan blackberry, Scotch broom, and teasel; and very little native vegetation. Native vegetation on the project site is generally restricted to patchy areas near the railway, along the eastern edge of the landfill/shoreline, and along the southern edge of the landfill and drainage ditch on the southern project site boundary. Native species observed include primarily red alder, big-leaf maple, Douglas-fir, salmonberry, nettle, and sword fern.

Wetland A (Sheet 2 of 6) is an estuarine wetland associated with the Padilla Bay inner lagoon and is dominated by herbaceous species including saltmarsh bulrush and seaside arrowgrass, with large mudflat areas with no vegetation. Wetland B (Sheet 2 of 6) is a palustrine emergent wetland associated with the northern portion of the ditch that forms the southern boundary of the project site, and is dominated by red alder, cattail, and skunk cabbage. Hydrologic inputs to the ditch where Wetland B is located appear to include stormwater from South March Point Road, culverts, and the landfill site. The lower (southerly) section of the drainage ditch appear to be tidally influenced and contained salt-tolerant species; this lower section of the drainage ditch was mapped as part of Wetland A, given the apparent tidal influence on hydrology and vegetation.

5m. Describe how the property is currently used. [help]

The Site is a former County landfill that is vacant land and not used for any purpose at this time. The northern two-thirds of the March Point Landfill was occupied by a cedar log mill operated by Snow Mountain until approximately 2010. The remaining former mill buildings are shown on Sheet 2 of 6. The log mill had operated in this location since the late 1980s. The former mill area presently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building.

In 2014 and 2015, DNR conducted a wood waste removal project to address a 2- to 10-foot-thick layer of wood waste (mainly bark and sawdust) left behind after removal of the log mill and associated equipment. The wood waste generally consisted of cedar bark, wood chips, and sawdust. Approximately 44,000 cubic yards of wood waste debris was hauled off-site and recycled as compost material; an estimated 13,000 cubic yards of wood waste debris mixed with rock remains on site. The rock content of this debris is estimated at approximately 50 percent, and the majority of this material is stockpiled in two piles southeast of the log mill foundations. The rest of residual wood waste is located near the former mill building foundations as part of the road materials.

At the City of Anacortes' request, two 3- to 4-foot high berms were constructed on the east and west sides of the landfill to limit potential stormwater runoff. These berms were hydroseeded after construction. After construction of the berms, the surface of the landfill was re-surveyed, and the current topography is shown in Sheet 2 of 6. The southern third of the March Point Landfill is unoccupied and covered with blackberry thicket, Scotch broom, light forest, and limited herbaceous and grass groundcover.

5n. Describe how the adjacent properties are currently used. [help]

The March Point Landfill is bounded by South March Point Road to the south, the BNSF Railway Company (BNSF) railroad causeway and Padilla Bay to the north and northeast, and the Swinomish Indian Reservation to the east and southeast (Sheet 1 of 6). State Highway 20 runs generally east-west about 800 feet southeast of the site beyond South March Point Road. The landfill is buttressed with concrete and anthropogenic debris along its saltwater edge to the northeast, which includes the BNSF right-of-way. The embankment under the railroad serves as a dike separating the Padilla Bay Lagoon from the Padilla Bay. A short trestle (approximately 110 feet wide) in the railroad embankment allows for saltwater exchange between the lagoon and Padilla Bay. The area southeast of the landfill is owned by the Swinomish Indian Tribal Community and has been developed as light industrial/commercial area.

East of the site there is a trucking company, a gift shop, fireworks stands and further east the Swinomish Indian Tribe hotel and casino. To the west of the site there is an industrial tank fabrication company. South of the site and adjacent to the industrial tank fabrication company there is a heron nesting colony, referred to as the March Point Heronry (Sheet 1 of 6).

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

The existing structures on the site are remnant concrete slabs and 4 small buildings from the sawmill that was demolished as described in 5m. The footprint of the concrete slabs is approximately 54,900 SF and the footprint of the buildings is approximately 5,000 SF.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From Interstate 5, heading west on Highway 20 turn right on South March Point Road. In 0.5 miles the site will be on the right. See Sheet 1 of 6 for the project vicinity and general location.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

Background

The March Point Landfill (Site) started as an informal roadside dump in the 1950s and was later operated by Skagit County as a landfill from 1961 until its closure in 1973. As part of closure requirements in 1973, the Site was graded and covered with 2-3 feet of soil, as landfill cap. The soil cap was installed in accordance with regulations in effect at that time including minimum functional standards for soil waste handling, enacted by Washington State under Chapter 173-301 WAC (filed in 1972). Due to the Site's proximity and potential impacts to Padilla Bay and the inner lagoon, it was identified by Ecology as a high priority cleanup area under the Puget Sound Initiative. Until approximately 2010, the northern two-thirds of the Site was occupied by a cedar log sawmill, which had operated in this location since the 1980s. The former mill area currently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building.

In 2014 and 2015, approximately 44,000 cubic yards of wood waste debris from the sawmill was hauled off site and recycled as compost material; an estimated 13,000 cubic yards of wood waste debris mixed with rock remains on site. Most of this material is stockpiled in two piles southeast of the sawmill foundations. The majority of the rest of the residual wood waste is located near the former mill building foundation.

The remedial investigation showed the following exceedances of the preliminary cleanup levels:

- Soil: total and dissolved metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons in the gasoline range and oil ranges, benzene, semivolatile organic compounds (SVOCs), and pesticides.
- Groundwater: total and dissolved metals, PCBs, benzene, SVOCs, pesticides.

- Seeps: total and dissolved metals, benzene, the SVOC 1-methylnaphthalene, PCBs, the pesticide 4,4'-DDE.
- Surface water: total and dissolved metals, benzene, SVOCs, and the pesticide 4,4' DDD.

A sediment investigation and watershed study was performed at the Site in a series of events from 2008 through 2011. The results of the sediment investigation concluded that discharges from the landfill do not have a negative effect on the sediment biota. Therefore, no impacts on sediments in the inner lagoon or Padilla Bay associated with the landfill were identified.

In addition, landfill gas (LFG) monitoring in 2011 and 2012 revealed elevated methane concentrations within the wood waste which was placed over the original soil cover. The highest concentrations of methane generally coincided with the thickest accumulations of wood waste. Since only a portion of the wood waste remains, the concentrations of LFG should be much lower today.

A conceptual site model was developed that suggests that areas exist along the landfill boundary where groundwater within the solid waste is seeping, or has the potential to seep, into surface water. The conceptual site model showed the exposure pathways and receptors for human health receptors are as follows:

- Direct human exposure to solid waste through construction activities.
- Seasonal infiltration of surface water into the solid waste, causing discharge of groundwater to the inner lagoon through seeps, where it could eventually affect marine biota.
- Migration of shallow groundwater though the Bay Mud into the underlying Lower Aquifer and subsequent discharge to surface waters or marine sediment where it could affect marine biota.
- Potential exposure of solid waste through erosion and direct release to surface waters/marine sediment of the inner lagoon where it could affect marine biota.
- Volatilization, dust emission, and inhalation of chemicals and methane gas generated from solid waste.

Project Description

Several remedial alternatives were developed for this site and were evaluated using seven criteria: protectiveness; permanence; long term effectiveness; short term risk; technical and administrative implementability; public concerns; and cost. In addition, the restoration time frame for each alternative was considered and a disproportionate cost analysis was performed for the alternatives.

Based on this evaluation, the selected alternative was the installation of a Geosynthetic Clay Laminated Liner (GCLL) cap. The alternative includes:

- Demolition of the structures on site;
- Installing stormwater control measures on and around the landfill.
- Moving solid waste (45,000 cubic yards), including concrete and anthropogenic debris on the shorelines, from the edges of the landfill inward, to allow construction of a permanent cap without expanding the footprint of the landfill.
- Grading the waste to a mound per the Minimum Functional Standards of WAC-173-304 to promote stormwater runoff.
- Installing a 3-feet thick cap system, including an enhanced GCLL extending to the Bay Mud. The engineered cap will minimize or eliminate infiltration of groundwater into the landfill and the GCLL would minimize discharge of groundwater from the landfill to surface waters.
- Treating wastewater (estimated 1.3 million gallons) generated during the construction work.
- Installing a landfill gas (LFG) collection system, which would passively vent LFG to the atmosphere, as well as groundwater collection/treatment as needed to prevent off-site migration.
- Installation of a perimeter road for access to wells and the LFG vent system.
- Installation of stubouts for possible future use of public water and electricity.
- Performing long-term monitoring of groundwater (quality and levels for hydraulic control purpose), seepage, LFG, and the landfill closure facility.
- Institutional controls will be implemented when the cleanup action is complete including deed restrictions and installation of a permanent chain link fence around the perimeter of the landfill to limit site access.

The existing concrete and anthropogenic debris will be removed from the shoreline and the shoreline slope will be flattened to 5H:1V and constructed with a multi-layer cap system, the upper 18 inches of which will be of suitable soil to facilitate development of vegetative communities (Sheet 3 of 6 and Sheet 5 of 6). The vegetation that will be selected will include a variety of native shrubs; however, trees will not be planted to

avoid having root systems that could penetrate the cover soils and possibly damage the GCLL. A temporary watering system may be installed to provide supplemental water for the plantings. Approximately 1.72 acres of habitat will be created and/or restored upon completion of the project. The cleanup project is expected to significantly reduce leachate seepage to surface water and groundwater, control LFG venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage.

Prior to construction, a Heron Management Plan for the March Point Heronry will be prepared. Sheet 1 of 6 and Sheet 2 of 6 shows the location of the heronry relative to the landfill.

Work will include conducting noise monitoring during the breeding season (April through July) the year prior to anticipated construction that will establish background noise levels; identifying daily and seasonal noise restrictions; and propose mitigation actions. Noise monitoring was conducted during the breeding season in 2021. The established noise levels will be compared against the anticipated construction noise levels and durations. Recommendations will be developed for the construction activities. Finalization of the Heron Management Plan will likely include coordination with the City of Anacortes, Ecology, and local stakeholders.

Compliance monitoring will include construction performance monitoring to ensure the work is performed in compliance with the project requirements. Post-construction performance monitoring of groundwater, seeps, LFG, and stormwater after will be conducted after construction of the landfill cap is complete to determine (1) whether the cap is performing as expected, (2) whether leachate is continuing to seep from the landfill into Padilla Bay, and (3) whether lateral migration of groundwater into the solid waste or lateral migration of LFG away from the landfill is occurring. Ecology will review the selected cleanup action every five years to ensure protection of human health and the environment.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The general purpose of the project is to control the release of pollutants into the environment. The project will implement a permanent cleanup action that meets cleanup levels and remedial action objectives under the Model Toxics Control Act (MTCA; WAC 173-340) and the applicable landfill closure requirements as applicable or relevant and appropriate requirements (ARARs; WAC 173-304). The need for the project is established by the terms of the current Consent Decree. The March Point Landfill Site is listed on Ecology's Hazardous Sites List that is being investigated and cleaned up as part of the Puget Sound Initiative.

6c. Indicate the project category. (Check all that apply) [help]

☐ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational

☐ Maintenance ☒ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☒ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☒ Ditch	☒ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☒ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☒ Other: Environmental cleanup

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Project elements will occur within or adjacent to Wetland A (associated with Padilla Bay inner lagoon) and Wetland B (associated with the drainage ditch). Approximately 75 percent of the site is located within the 200-foot shoreline buffer as shown in Sheet 2 of 6. Work activities within each waterbody include: installation of temporary erosion control measures; excavation of landfill refuse; regrading to design contours; installation of landfill cap system; placement of surface topsoil; and planting shoreline vegetation.

The following description provides an overview of the sequence of construction and additional details on construction methods and equipment.

The sequence of construction is:

- mobilization and site setup
- site clearing (brush and trees)
- capping utilities and demolition of structures on site
- installation of a temporary groundwater treatment system
- installation of temporary erosion control measures
- excavation of landfill refuse and regrading, including shoreline regrading and mounding in the central landfill area
- grading the landfill to the design contours
- installation of landfill gas venting system
- installation of the cap system, including the GCLL and topsoil on the surface
- site hydroseeding
- planting vegetation on the shoreline plant installation
- construction of perimeter road
- installation of perimeter security fence
- demobilization

All vegetation within the footprint of the excavation will be cleared prior to site grading. Erosion control measures, such as silt fences on land and debris boom or floating silt fence in the water will be placed prior to the start of excavation. Any active utilities will be capped outside the landfill and the existing structures will be demolished using conventional excavators. The edges of the landfill will be excavated and mounded near the center of the landfill. The excavation and mounding effort is intended to reduce the footprint and eliminate presence of any waste outside the property boundary. Conventional excavators will be used to excavate the waste and haul trucks will be utilized to transfer the waste to the central landfill area. Prior to excavating along the shoreline, a trench will be excavated near the top of the shoreline slope to intercept groundwater or surface water runoff to reduce the potential of migration of contaminated water offsite. Any water that collects in the trench will be pumped, using trash pumps, to a temporary treatment system, where it will be treated, tested, then discharged to a publicly owned treatment works. Excavation and grading will be conducted using tracked equipment (e.g., excavators and dozers). To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted from the upland at low tide when the work can be conducted “in the dry”. The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will be always on land and will excavate when the tide is below the edge of the excavation. Working at low tide has been shown to be very successful at limiting suspension of potentially contaminated sediment without the placement of an interim cover over the excavation face; however, for an additional level of protection, a layer of material or geotextile fabric will be placed over any exposed soil at the end of every tide cycle.

The cap material will be imported from offsite commercial sources using dump trucks, possibly equipped with trailers. The source of all import material will be approved by Ecology prior to the material being brought to the site. All equipment that comes in contact with site soils will be decontaminated prior to leaving the site to reduce the potential of contaminated soils being transported off-site.

After the refuse has been regraded and the liner and cap installed, the entire site will be hydroseeded, the crushed rock access road will be constructed, perimeter fencing installed, and the shoreline planted with native shrubs from the high tide line (HTL; 10.27 feet MLLW) up to an elevation of approximately 16-feet MLLW (Sheet 3 of 6 and Sheet 5 of 6).

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: May 2022 End Date: November 2022 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$7,437,000

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

The project only disturbs the areas where waste is present. However, waste is present within/beneath Wetlands A and B and impacts to these wetlands are unavoidable. The excavation will be the minimum required to remove the landfill waste along the shoreline and reduces, to the extent practicable, impacts to wetlands.

7b. Will the project impact wetlands? [help]

☒ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

See attached Critical Areas Assessment Report (Hamer Environmental, 2021)

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

Mitigation for the excavation of the shoreline slopes, which include wetland areas, was identified in the Cleanup Action Plan as a component of the project. The proposed mitigation included regrading the slopes to establish a stable grade and revegetating the shoreline with a variety of native shrubs suitable to the adjacent estuarine habitat. Included as an appendix in the Cleanup Action Plan, a habitat maintenance plan was developed to ensure that the newly planted riparian vegetation at the project site would become established. The proposed methods, minimum frequency, and duration of maintenance activities (including long-term maintenance) required for the following activities (watering, mulching, weeding, tree removal, dead shrub removal, and debris removal) were provided in the plan.

See attached Monitoring Plan appendix to the Cleanup Action Plan.

In addition to post-construction mitigation, work activities will be phased to minimize potential impacts to the aquatic environment. The construction will be phased in order to minimize the amount of land disturbing activity occurring at the same time and shall take into account seasonal work limitations and tides to reduce the potential impacts to aquatic biota from turbidity and potentially contaminated soil. Work approaches to minimize impacts to water quality, including practices to minimize sediment transport and turbidity, are described in Section 8a. Additionally, the details of the erosion and sediment control best management practices will be described in a Stormwater Management Plan that will be developed as part of the design process.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

The cleanup of the landfill is part of a regional effort by the Department of Ecology to improve the environmental quality of Puget Sound. The March Point Landfill cleanup is one of eleven sites within Fidalgo and Padilla Bays that are being cleaned up under the Puget Sound Initiative (PSI). The focus of these cleanups is to restore and protect nearshore critical habitat on a baywide, or watershed basis. The project mitigation is designed to enhance the function of the shoreline for aquatic biota.

The goals of the wetland creation/restoration element are to create/restore estuarine wetland as compensatory mitigation for permanent impacts to estuarine wetlands; provide a net improvement in wetland functions on the site, particularly through increasing available estuarine wetland habitat including for great blue heron foraging; and providing permanent protection of the wetland mitigation area through fencing and signs. Additional project benefits will include an expansion of juvenile salmonid rearing habitat and an expansion of designated critical habitat for Puget Sound ESU Chinook salmon and Coastal-Puget Sound DPS bull trout.

The project will be self-mitigating through re-establishment on-site. The project will create 0.35 acres of new area that would be tidally influenced (below HTL [10.27 feet MLLW]) and suitable for natural colonization by marsh plants from the adjacent estuarine marsh. At the completion of the landfill regrading and placement of the cap system and topsoil, the HTL elevation will move horizontally toward the upland such that new wetted area of the Padilla Bay inner lagoon will be created because the reshaped shoreline would be topographically flatter than the existing steep shoreline, with newly regraded slopes at approximately 5H:1V.

An additional 1.37 acres of shoreline (2,315 linear feet) would be planted with native shrubs suitable for the estuarine environments associated with the Padilla Bay inner lagoon. The shrubs that would be planted would be chosen based on shrub communities currently colonizing the site or nearby shoreline areas. The purpose of the riparian shrub buffer is to enhance the functions of the adjacent estuarine marsh.

Project impacts on riparian habitat were assessed using the NOAA Fisheries Nearshore Habitat Conservation Calculator. Nearshore habitat functional values and habitat impacts at the project site were assessed for the area 130 feet landward of the highest astronomical tide (HAT; 10.7 ft MLLW) as utilized in the nearshore calculator. Within 130 feet landward of the HAT, the project site currently contains approximately 299,534 SF of degraded riparian habitat, including steeply sloped banks partially covered with concrete and anthropogenic debris. Post-construction, this area will include gently graded slopes more conducive to supporting fish and wildlife habitat functions, given the removal of concrete and anthropogenic debris, flattened slopes, and the on-site mitigation with planted native shrub vegetation. As a result, riparian habitat quality will be increased by

64%, from an initial weighted average habitat value of 0.08 to a post-construction value of 0.14. To further quantify the nearshore habitat, the nearshore calculator expresses the functional loss or gain of ecosystem services in terms of Discounted Service Area Years (DSAYs). The nearshore calculator indicates the post-construction conditions, including proposed shoreline mitigation, generate 34.72 DSAYs. Given the net positive DSAYs, the on-site mitigation is considered sufficient mitigation for the project aquatic and shoreline impacts.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
Excavate	Wetland A	Category 1 (Estuarine)	0.22 ac	6 months	C, R	1.72 acre of restored/created habitat (1.37 acre riparian shrub planting + 0.35 acre new area below HTL)
Excavate	Wetland B	Category II (Depressional)	0.13 ac	6 months	R	

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: n/a

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

There is no filling of wetlands only excavation of landfill debris.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

The excavation methods are described above in 6e. See Sheet 6 of 6 for locations of wetland areas to be excavated.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

As described in Section 6e, work will be conducted "in the dry" at low tide to reduce the potential impacts to water and aquatic biota from turbidity and potentially contaminated soil. Covering exposed shoreline bank cuts with temporary cover between tide cycles will further reduce the potential for a release of any contaminated material to the lagoon. Some of the actions that will be taken to reduce impacts to the adjacent lagoon include:

For the prevention of erosion and soil transport from the site, all drainage water from disturbed areas will be passed through a sediment trap or other appropriate sediment removal BMP before discharging from the site. Controls intended to retain soil on site will be constructed as one of the first steps in grading and will be functional before other land disturbing activities take place. One of the following will be used to prevent the transport of soil from the site: compost stocks, berms or blankets, filter fence, straw bale barrier, brush barrier, gravel filter berm, sediment pond or sediment trap. Sandbags may also be utilized to prevent sediment from being discharged offsite.

Prevention of on-site erosion will include stabilizing all exposed and unworked soils, including stockpiles. During construction, no soils will remain exposed for more than seven days. Soils will be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast. Soil stockpiles will be stabilized to reduce erosion, protected with sediment trapping measures, and be located away from storm drain inlets, waterways, and drainage channels. Before the completion of the project, permanent stabilization of all exposed soils that have been disturbed during construction will be conducted. Some examples of BMPs to stabilize soils, including stockpiles, are compost blankets, seeding and mulching, or matting/rolled erosion control products. Compost blankets can be used as temporary erosion control and then be mixed into the soil to help meet the post construction soil requirements.

Erosion from slopes will be minimized by design and construction in a manner that will minimize erosion. Off-site stormwater run-on or groundwater will be diverted away from slopes and undisturbed areas.

All temporary and permanent erosion and sediment control BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. All temporary erosion and sediment controls will be removed within five (5) days after final site stabilization is achieved or after the temporary controls are no longer needed, whichever is later. Trapped and disturbed soil resulting from excavation will be permanently stabilized on-site. Site inspections will be conducted by a certified erosion and sediment control lead who will be identified in the construction stormwater control plan and will be present on-site or on-call at all times.

The construction will be phased in order to minimize the amount of land disturbing activity occurring at the same time and shall take into account seasonal work limitations and tides.

The details of the BMPs will be described in a Stormwater Management Plan that will be developed as part of the design process.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

Mitigation for the excavation of the shoreline slopes was identified in the Cleanup Action Plan as a component of the project. The proposed mitigation included regrading the slopes to establish a stable grade and revegetating the shoreline with a variety of native shrubs. Included as an appendix in the Cleanup Action Plan, a habitat maintenance plan was prepared to ensure that the newly planted riparian vegetation at the project site would become established. The proposed methods, minimum frequency, and duration of maintenance activities (including long-term maintenance) required for the following activities (watering, mulching, weeding, tree removal, dead shrub removal, and debris removal) were provided in the plan.

See attached Monitoring Plan appendix to the Cleanup Action Plan.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

Please refer to section 7g.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Landfill waste removal below HTL	Padilla Bay Lagoon	Padilla Bay Lagoon	4 MO	- 2,600 CY	31,.900 SF
Fill	Padilla Bay Lagoon	Padilla Bay Lagoon	4 MO	+ 4,400 CY	31,900 SF

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

The following types and approximate volumes of material that will be placed below HTL.

Material Type	Volume (CY)	Source
Sand	1,400	Fill will be from off-site upland source that will be approved by Ecology
Topsoil	600	
Cover Soil	1,200	
Crushed Rock	1,200	

At the base of the excavation after final excavation grades have been attained, a 0.7-foot thick layer of sand will be placed. After sand placement the GLCC will be placed. The GLCC will be capped with a 0.5-foot thick layer of sand, a 1-foot thick layer of crushed rock, a 1-foot layer of cover soil, and a 0.5-foot layer of top soil. The material will likely be placed with excavators and graded with small dozers.

See Sheet 4 of 6 for detail.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Excavation and grading of the shoreline will be conducted using tracked equipment (e.g., excavators and dozers). To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted from the upland when the tides are out, and the shoreline bank is exposed. The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will be always at least 2 feet back from the actual water line. Material that is excavated from the shoreline will be relocated within the landfill. It is not expected that any excavated material will be transported off-site. The estimated volume of material removed below HTL is approximately 4,400 CY; the total volume of the excavation for the entire project is approximately 42,000 CY.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
US Army Corps of Engineers	Daisy Douglass	(206) 764-6903	9/27/2021
Washington Department of Ecology – Toxics Cleanup Program	Arianne Fernandez	(360) 407-7209	9/27/2021
Washington Department of Ecology – Shorelands & Environmental Assistance Program	Laura Inouye	(360) 407-6165	6/4/2021
US Fish and Wildlife Service - Coastal,	Ryan McReynolds	(360) 753-6047	6/22/2021

Lowland Aquatics, and Marine Zone			
US Fish and Wildlife Service - Migratory Birds and Habitat Program, Interior Regions 9 & 12	Mike Green	(503) 872-2707	6/25/2021
City of Anacortes	Don Measamer	(360) 299-1942	6/4/2021
Lummi Nation - Natural Resources Department	Gregg Dunphy	(360) 312-2311	6/4/2021
Washington State Department of Natural Resources – Orca-Straits Aquatic District	Ross Zimmerman	(360) 707-1344	6/4/2021
Washington State Department of Natural Resources	Tim Goodman	(360) 902-1057	6/4/2021

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☒ Yes ☐ No

The outer portion of the lagoon is listed as Category 5 for sediment PCBs and Category 2 for pH and dissolved oxygen in water.

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

Fidalgo Island-Frontal Padilla Bay (171100020403)

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.

WRIA 3

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.

- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☒ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☐ Other: _____

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: 2012 Stormwater Management Manual for Western Washington

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☒ Yes ☐ No

A sediment investigation that was conducted as part of the RI/FS identified no impacts to the Padilla Bay Lagoon sediments that were attributable to discharges form the landfill. The sediment investigation did find that there were elevated concentrations of dioxins/furans in a drainage channel along the eastern edge of the landfill that was attributed to an off-site source.

9j. If you know what the property was used for in the past, describe below. [help]

The March Point Landfill (Site) started as an informal roadside dump in the 1950s and was later operated by Skagit County as a landfill from 1961 until its closure in 1973. As part of closure requirements in 1973, the Site was graded and covered with 2-3 feet of soil. The soil cap was installed in accordance with regulations at the time including minimum functional standards for soil waste handling, enacted by Washington State under Chapter 173-301 WAC (filed in 1972). From the late 1980s to late 2011, the northern two-thirds of the Site was occupied by a cedar log sawmill, which had operated in this location since the 1980s. The former mill area currently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building. The site is currently unoccupied.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

See attached Appendix I from RI/FS – Archaeological Reports and Recommendations.

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

See attached Biological Evaluation for Informal ESA Consultation Form for the proposed project.

Table 9l-1. Federally Listed Species and Critical Habitat That May Occur in the Action Area

SPECIES NAME	LISTING STATUS	AGENCY	CRITICAL HABITAT
Coastal-Puget Sound Bull Trout (*Salvelinus confluentus*)	Threatened (Puget Sound DPS)	USFWS	Designated; within the action area
Puget Sound Chinook Salmon (*Oncorhynchus tshawytscha*)	Threatened (Puget Sound ESU)	NOAA Fisheries	Designated; within the action area

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

The following Priority Habitats and Species (PHS) may occur on or in proximity to the site, according to the State of Washington PHS List:

PHS Species:

- Great blue heron (*Ardea Herodias*) breeding area
- Big brown bat (*Eptesicus fuscus*)
- Little brown bat (*Myotis lucifugus*)

PHS Habitat:

- Waterfowl concentrations – Padilla Bay Waterfowl Area
- Shorebird Concentrations – Padilla Bay
- Estuarine and marine wetlands

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.

☒ A copy of the SEPA determination or letter of exemption is included with this application.

☐ A SEPA determination is pending with _____ (lead agency). The expected decision date is _____.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

_____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain): _____

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☐ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☒ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification ☐ Non-Federally Regulated Waters

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard:

For projects or bridges over waters of the United States, contact the U.S. Coast Guard at: d13-pf-d13bridges@uscg.mil

☐ Bridge Permit ☐ Private Aids to Navigation (or other non-bridge permits)

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. MG (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. MG (initial)

Margo Gillaspy		October 12, 2021
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Theresa Price		October 11, 2021
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

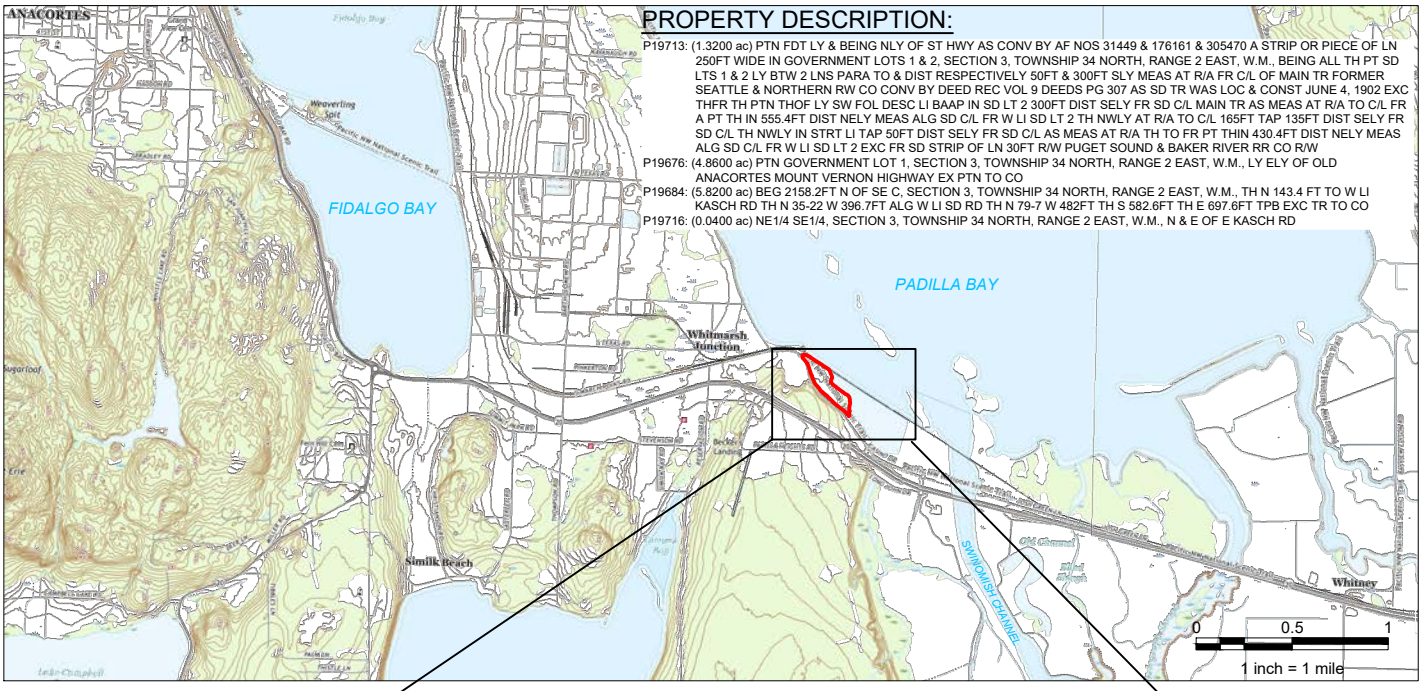
PROPERTY DESCRIPTION:

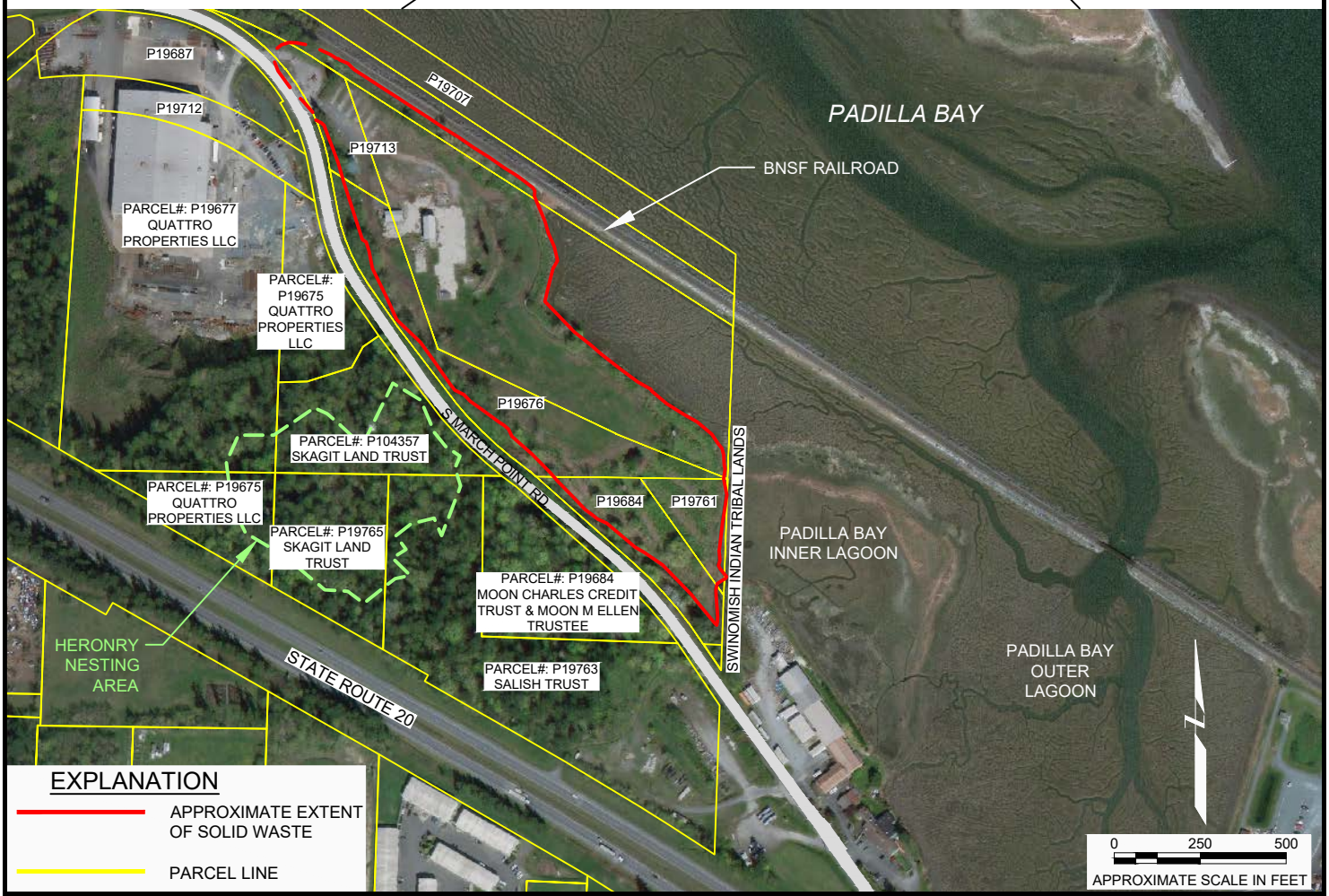
P19713: (1.3200 ac) PTN FDT LY & BEING NLY OF ST HWY AS CONV BY AF NOS 31449 & 176161 & 305470 A STRIP OR PIECE OF LN 250FT WIDE IN GOVERNMENT LOTS 1 & 2, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., BEING ALL TH PT SD LTS 1 & 2 LY BTW 2 LNS PARA TO & DIST RESPECTIVELY 50FT & 300FT SLY MEAS AT R/A FR C/L OF MAIN TR FORMER SEATTLE & NORTHERN RW CO CONV BY DEED REC VOL 9 DEEDS PG 307 AS SD TR WAS LOC & CONST JUNE 4, 1902 EXC THFR TH PTN THOF LY SW FOL DESC LI BAAP IN SD LT 2 300FT DIST SELY FR SD C/L MAIN TR AS MEAS AT R/A TO C/L FR A PT TH IN 555.4FT DIST NELY MEAS ALG SD C/L FR W LI SD LT 2 TH NWLY AT R/A TO C/L 165FT TAP 135FT DIST SELY FR SD C/L TH NWLY IN STRT LI TAP 50FT DIST SELY FR SD C/L AS MEAS AT R/A TH TO FR PT THIN 430.4FT DIST NELY MEAS ALG SD C/L FR W LI SD LT 2 EXC FR SD STRIP OF LN 30FT R/W PUGET SOUND & BAKER RIVER RR CO R/W

P19676: (4.8600 ac) PTN GOVERNMENT LOT 1, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., LY ELY OF OLD ANACORTES MOUNT VERNON HIGHWAY EX PTN TO CO

P19684: (5.8200 ac) BEG 2158.2FT N OF SE C, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., TH N 143.4 FT TO W LI KASCH RD TH N 35-22 W 396.7FT ALG W LI SD RD TH N 79-7 W 482FT TH S 582.6FT TH E 697.6FT TPB EXC TR TO CO

P19716: (0.0400 ac) NE1/4 SE1/4, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., N & E OF E KASCH RD





EXPLANATION

APPROXIMATE EXTENT OF SOLID WASTE

PARCEL LINE

REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

ADJACENT PROPERTY OWNERS:

1.	DNR	P19707
2.	Quattro Properties: P19687, P19712, P19677, P19675	
3.	Skagit Land Trust:	P104357
4.	Salish Trust:	P119763
5.	Swinomish Indian Tribal Cummunity:	P124181
6.	Charles Moon Credit Trust:	P19684

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

LAT/LONG: 48.46275236°N / 122.52989635°W

SHEET 1 OF 6

DATE: 10-05-2021

PROPOSED PROJECT:
MARCH POINT LANDFILL SITE CLEANUP ACTION

IN: PADILLA BAY
NEAR/AT: CITY OF ANACORTES
COUNTY: ANACORTES
STATE: WASHINGTON

DRAWN BY: APS CHECKED BY: TLP

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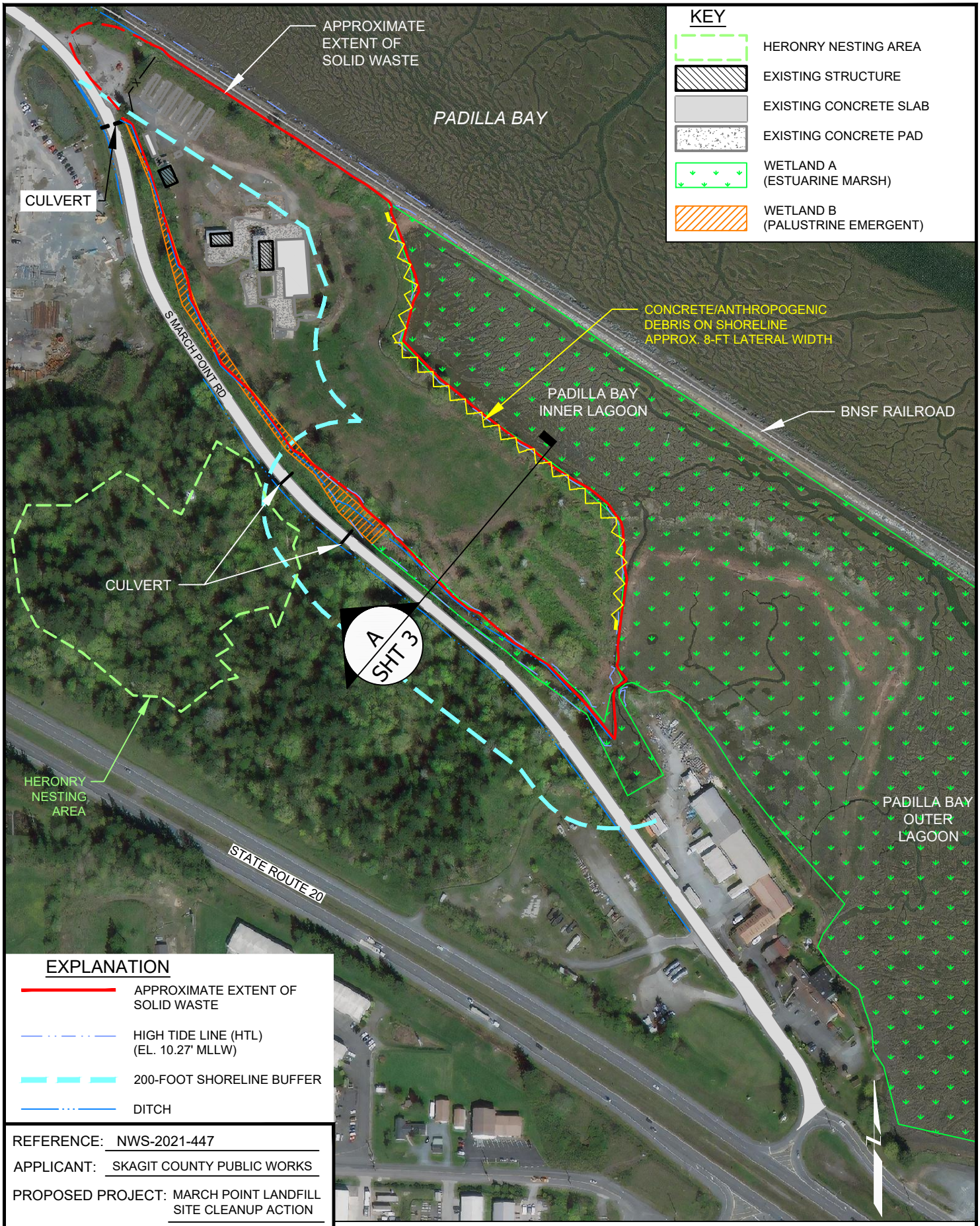

EXPLANATION

- APPROXIMATE EXTENT OF SOLID WASTE
- HIGH TIDE LINE (HTL) (EL. 10.27' MLLW)
- 200-FOOT SHORELINE BUFFER
- DITCH

REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 2 OF 6 DATE: 10-05-2021

0 150 300
APPROXIMATE SCALE IN FEET

DRAWN BY: APS CHECKED BY: TLP

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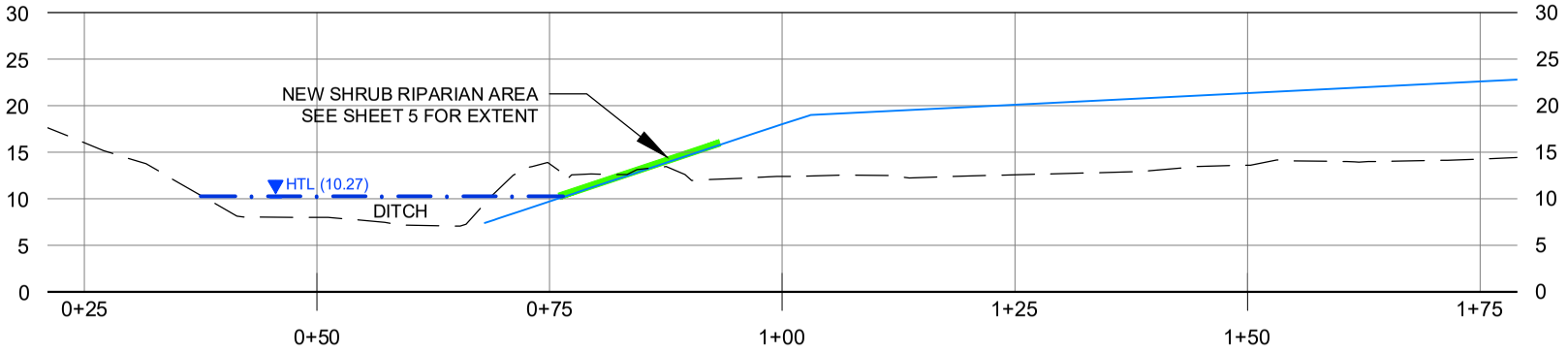
REFERENCE: NWS-2021-447

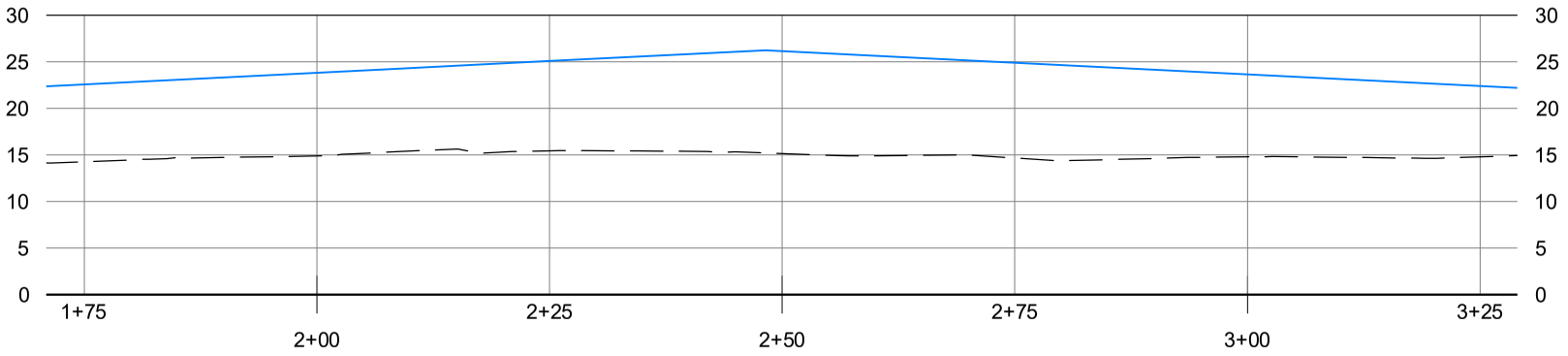
APPLICANT: SKAGIT COUNTY PUBLIC WORKS

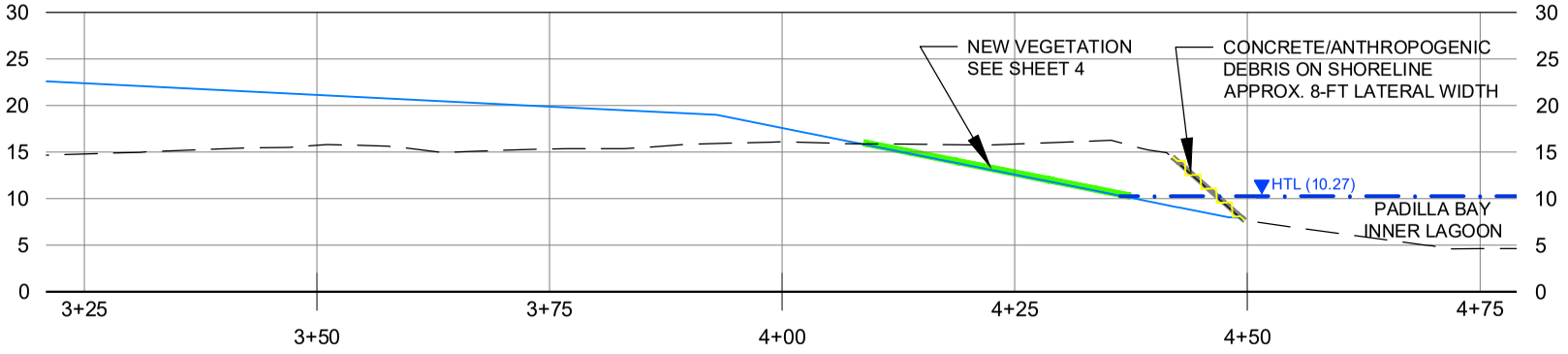
PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

DATE: 10-05-2021







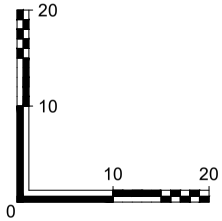
CROSS SECTION A

CROSS SECTION EXPLANATION

EXISTING GRADE

PROPOSED FINAL GRADE

HIGH TIDE LINE (HTL) (EL. 10.27 MLLW)



APPROXIMATE SCALE IN FEET

DRAWN BY: APS CHECKED BY: TLP

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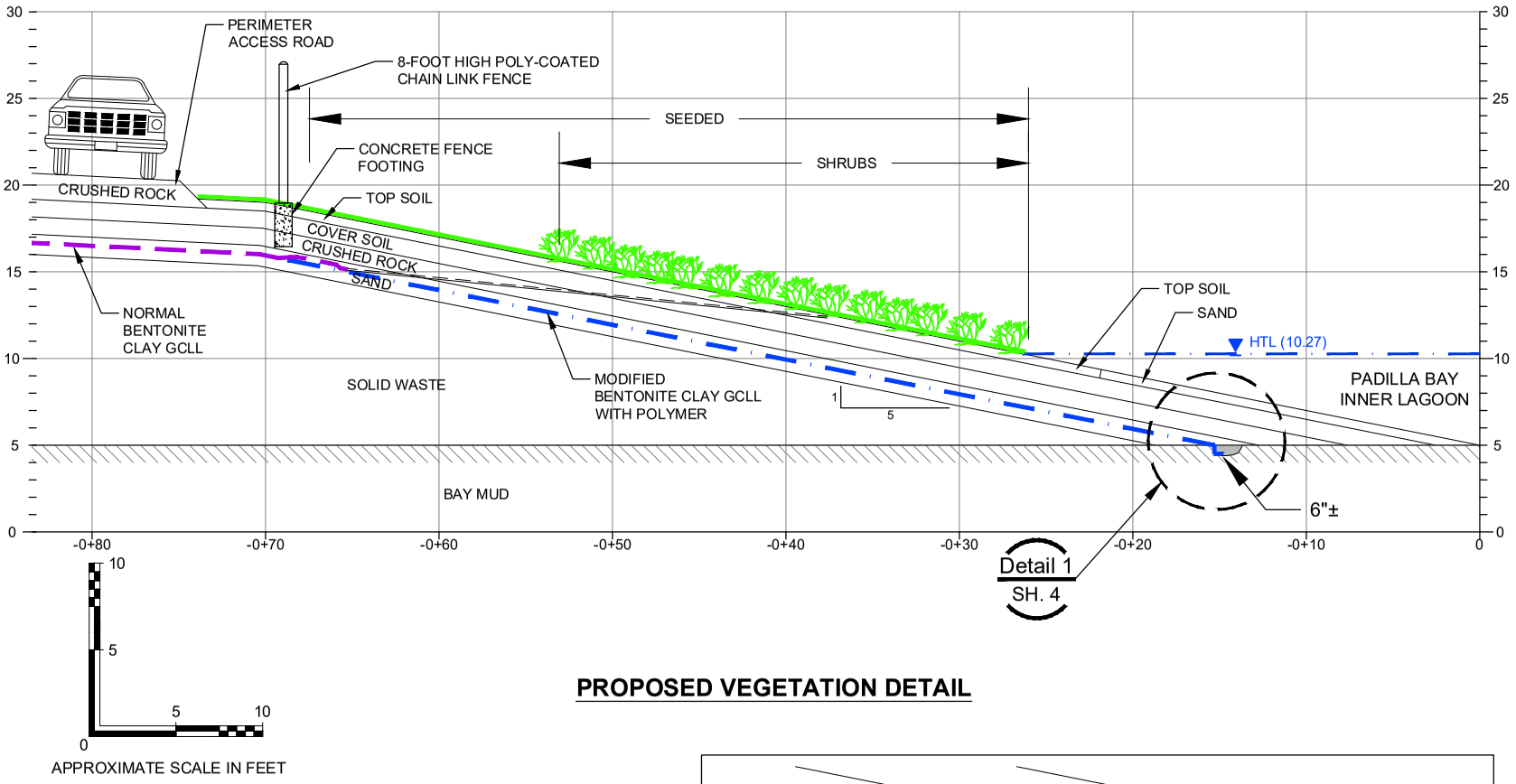
REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

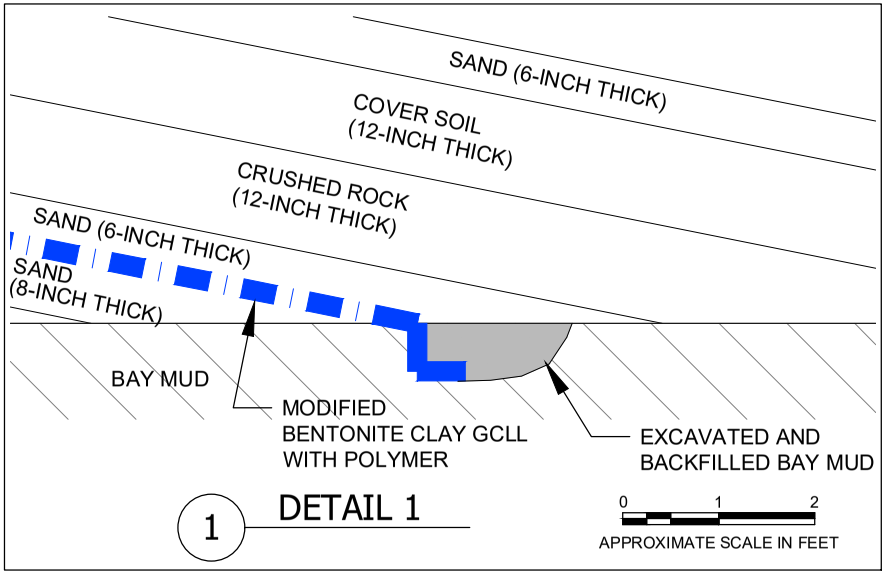
LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 4 OF 6 DATE: 10-05-2021



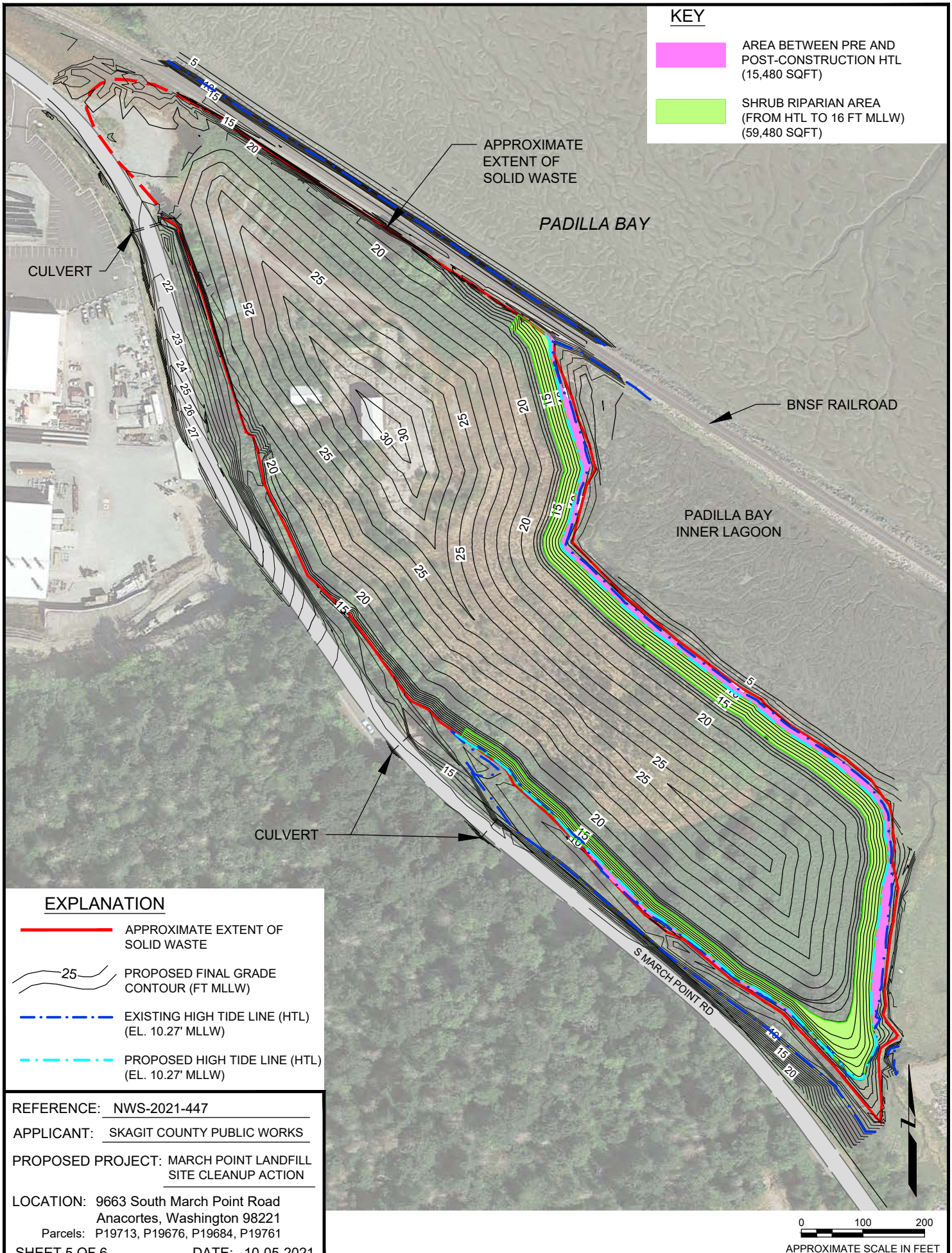
APPROXIMATE SCALE IN FEET

PROPOSED VEGETATION DETAIL



1 DETAIL 1

APPROXIMATE SCALE IN FEET



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DRAWN BY: APS CHECKED BY: TLP

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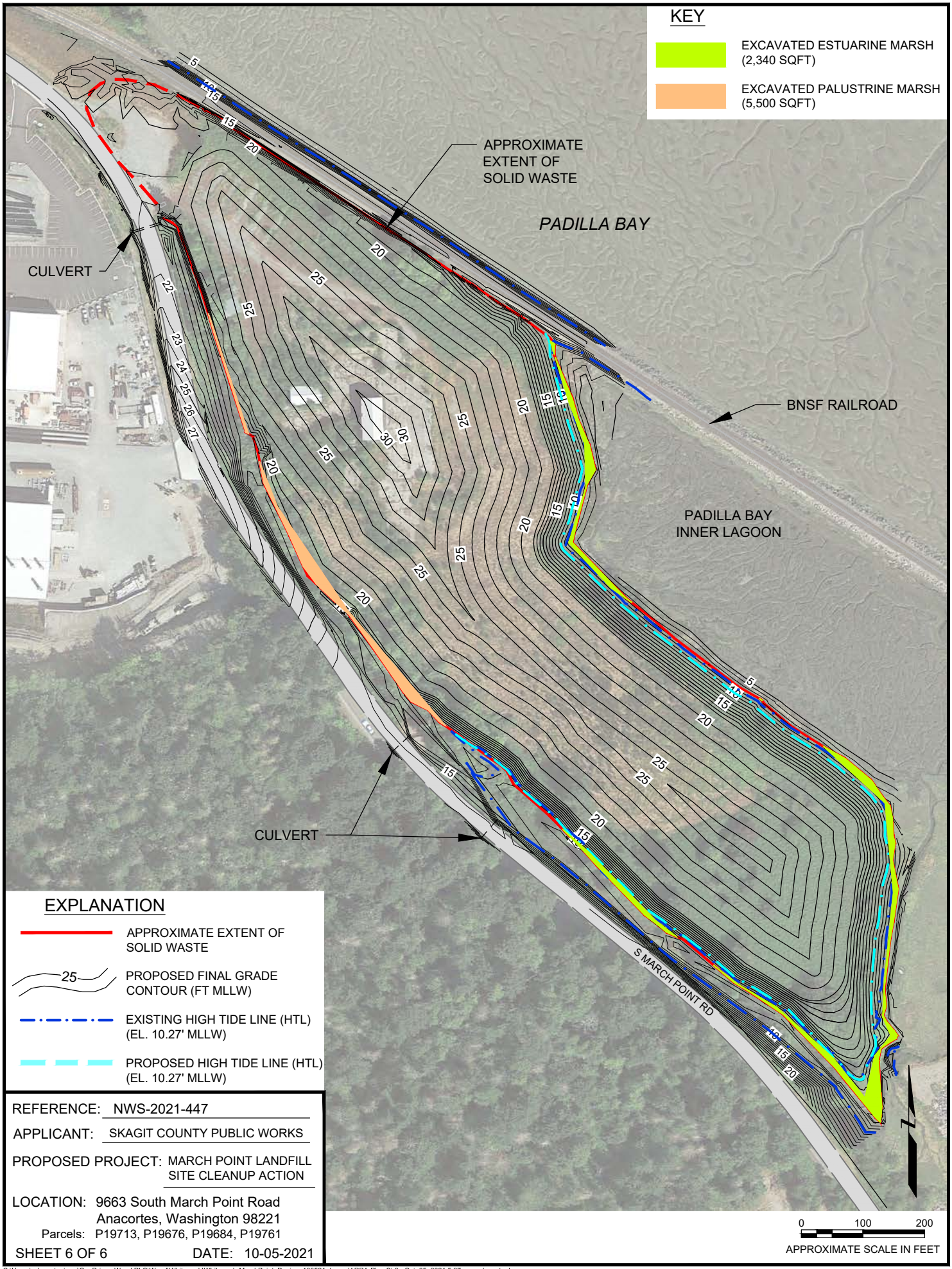

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WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

_____

Attachment A:
For additional property owner(s) [help]

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)			
Charles Moon Credit Trust & Ellen M Moon Trustee C/O Gary Moon			
2. Mailing Address (Street or PO Box)			
2089 Timberline Dr			
3. City, State, Zip			
Bellingham, WA 98226			
4. Phone (1)	**5.** Phone (2)	**6.** Fax	**7.** E-mail
Address or tax parcel number of property you own:			
P19684			
Signature of Property Owner			

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Site access to the Moon property (P19684) is provided pursuant to the terms of a De Minimis Consent decree approved by the Skagit County Superior Court.

Printed Name _____ Signature _____

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-012 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

_____

_____

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

_____

Attachment A:
For additional property owner(s) [help]

Use this attachment only if you have more than one property owner. Complete one attachment for each additional property owner impacted by the project.

Signatures of property owners are not needed for repair or maintenance activities on existing rights-of-way or easements.

Use black or blue ink to enter answers in white spaces below.

1. Name (Last, First, Middle) and Organization (if applicable)			
Ralph Hillestead C/O Art Hillestead			
2. Mailing Address (Street or PO Box)			
23536 River Rd			
3. City, State, Zip			
Sedro-Woolley, WA 98284			
4. Phone (1)	**5.** Phone (2)	**6.** Fax	**7.** E-mail
Address or tax parcel number of property you own:			
P19761			
Signature of Property Owner			

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Site access to the Hillestead property (P19761) is provided pursuant to the terms of a Skagit County Superior Court order.

Printed Name _____ Signature _____

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-012 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY

Date received: _____

Agency reference #: _____

Tax Parcel #(s): _____

TO BE COMPLETED BY APPLICANT [help]

Project Name: _____

Location Name (if applicable): _____

Attachment C:
Contact information for adjoining property owners. [help]

Use this attachment only if you have more than four adjoining property owners.

Use black or blue ink to enter answers in white spaces below.

1. Contact information for all adjoining property owners. [help]

Name	Mailing Address	Tax Parcel # (if known)
Charles Moon Credit Trust & Ellen M Moon Trustee	2089 Timberline Dr Bellingham, WA 98226	P19684
State of Washington Dept of Natural Resources, State Lands Division	PO Box 47016 Olympia, WA 98504	P19707

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-014 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers ®
Seattle District

AGENCY USE ONLY
Date received:_____; ☐ Town
☐ Application Fee Received; ☐ Fee N/A
☐ New Application; ☐ Renewal Application
Type/Prefix #:_____; NaturE Use Code:_____
LM Initials & BP#:_____
RE Assets Finance BP#:_____
New Application Number:_____
Trust(s):_____; County:_____
AQR Plate #(s):_____
Gov Lot #(s):_____
Tax Parcel #(s):_____

Attachment E:
Aquatic Use Authorization on Department of Natural Resources (DNR)-managed aquatic lands [help]

Complete this attachment and submit it with the completed JARPA form only if you are applying for an Aquatic Use Authorization with DNR. Call (360) 902-1100 or visit http://www.dnr.wa.gov/programs-and-services/aquatics/leasing-and-land-transactions for more information.

- DNR recommends you discuss your proposal with a DNR land manager before applying for regulatory permits. Contact your regional land manager for more information on potential permit and survey requirements. You can find your regional land manager by calling (360) 902-1100 or going to http://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-districts-and-land-managers-map. [help]
- The applicant may not begin work on DNR-managed aquatic lands until DNR grants an Aquatic Use Authorization.
- Include a $25 non-refundable application processing fee, payable to the "Washington Department of Natural Resources." (Contact your Land Manager to determine if and when you are required to pay this fee.) [help]

DNR may reject the application at any time prior to issuing the applicant an Aquatic Use Authorization. [help]

Use black or blue ink to enter answers in white spaces below.

1. Applicant Name (Last, First, Middle)
Gillaspy, Margo Skagit County Public Works
2. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
March Point Landfill Site Cleanup Action
3. Phone Number and Email
(360) 416-1578; margog@co.skagit.wa.us
4. Which of the following applies to Applicant? Check one and, if applicable, attach the written authority – bylaws, power of attorney, etc. [help]

☐ Corporation ☐ Limited Partnership ☐ General Partnership ☐ Limited Liability Company Home State of Registration:	☐ Individual ☐ Marital Community (Identify spouse): ☒ Government Agency ☐ Other (Please Explain):

5. Washington UBI (Unified Business Identifier) number, if applicable: [help]

NA

6. Are you aware of any existing or previously expired Aquatic Use Authorizations at the project location?

☒ Yes ☐ No ☐ Don't know

If Yes, Authorization number(s): Unknown

7. Do you intend to sublease the property to someone else?

☐ Yes ☒ No

If Yes, contact your Land Manager to discuss subleasing.

8. If fill material was used previously on DNR-managed aquatic lands, describe below the type of fill material and the purpose for using it. [help]

A significant portion (if not most) of the landfill was located on state owned aquatic lands, first informally, and then pursuant to the terms of the County's aquatic land lease with DNR. As part of the landfill operation, tidelands were filled with landfill refuse (primarily including, but not limited to, municipal household waste). When the landfill was closed in accordance with then-applicable regulations, a layer of topsoil was deposited on top of the refuse. After the landfill was closed, a large part of the site was subsequently leased by DNR to Snow Mountain Land Company, which deposited a significant quantity of wood waste fill on the site on top of the closed landfill. The wood waste was later removed by DNR upon termination of the Snow Mountain Land Company lease.

To be completed by DNR and a copy returned to the applicant.

Signature for projects on DNR-managed aquatic lands:

Applicant must obtain the signature of DNR Aquatics District Manager OR Assistant Division Manager if the project is located on DNR-managed aquatic lands.

I, a designated representative of the Dept. of Natural Resources, am aware that the project is being proposed on Dept. of Natural Resources-managed aquatic lands and agree that the applicant or his/her representative may pursue the necessary regulatory permits. My signature does not authorize the use of DNR-managed aquatic lands for this project.

Printed Name	**Signature**	**Date**
Dept. of Natural Resources District Manager or Assistant Division Manager	Dept. of Natural Resources District Manager or Assistant Division Manager	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA Publication ORIA-16-016 rev. 10/2016

City of Anacortes
Critical Areas Assessment Report
Wetland Delineation and Marine OHWM

Whitmarsh Landfill
Anacortes, WA 98221
Skagit County Tax Parcel Numbers
P19676, P19684, P19707, P19713, and P19761

hamerenvironmental
INNOVATIVE SOLUTIONS TO NATURAL RESOURCES

P.O. Box 2561
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Prepared For:

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c/o Theresa Price
Senior Botanist / Environmental Regulatory Compliance
+1 480 236 5087
theresa.price@woodplc.com

Prepared By:

Adam Crispin, PWS, Senior Wetland Scientist and Fisheries Biologist

Contact:

Hamer Environmental, Wetland and Fisheries Division
P.O. Box 2561
Mt. Vernon, WA 98273
Tel (Cell): 360.420.4905
Fax: 360.899.5146
adam@hamerenvironmental.com

Table of Contents

Figures

Tables

Acronyms and Abbreviations

APN	assessor parcel number
BMP	best management practice
Ecology	Washington State Department of Ecology
FEMA	Federal Emergency Management Agency
FWHCA	fish and wildlife habitat conservation area
GPS	global positioning system
HCA	habitat conservation area
HUC	hydrologic unit code
IPaC	information for planning and consultation
LID	low impact development
NRCS	Natural Resources Conservation Service
NWI	national wetlands inventory
OHWM	ordinary high water mark
PHS	priority habitat and species
RCW	revised code of Washington
SMA	Shoreline Management Act
SMP	Shoreline Master Program
TMDL	total maximum daily load
T&E	threatened and endangered species
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
WAC	Washington State Administrative Code
WDNR	Washington Department of Natural Resources
WDFW	Washington State Department of Fish and Wildlife
WRIA	water resource inventory area
WQI	water quality improvement

LIMITATIONS

This report is based upon information collected in the field and obtained from resources provided by Federal, State, and Local agencies. Conclusions are the professional opinion of the authors and are subject to approval by the appropriate agencies.

Statement of Qualifications

Adam Crispin, PWS (#3151), Senior Wetland Scientist and Fisheries Biologist
Adam has more than 10 years of experience conducting biological assessments and evaluations of wetlands and streams working for state agencies, non-profit organizations, and in the private sector as a consultant. Mr. Crispin has a wide range of expertise, including wetland and stream delineation, habitat assessment, population monitoring for amphibians and ESA-listed fish species, water quality monitoring, and stream-bank restoration. He has also led watershed-scale GIS mapping projects in northern California with the California Department of Fish and Wildlife, with a focus on habitat loss, rural agriculture, and summer low-flow hydrologic modeling. Adam has led fish removal operations (e-fishing and seining) for ESA listed species, monitored large dam removal projects, and conducted fish passage evaluations. He has also completed population surveys for salmonids at key life-history stages including juvenile and adult dive surveys, spawner surveys, and redd surveys.

Adam also completes Environmental Assessments (EAs) and Biological Assessments (BAs), for a wide array of freshwater and shoreline projects. Adam has completed a 40-hour wetland delineation training (Wetland Training Institute) and holds certificates for wetland plant and hydric soil identification from Department of Ecology. He is a certified Professional Wetland Scientist (PWS), and forage fish biologist (trained by the Washington Department of Fish and Wildlife). He is currently pursuing a Master's degree in Aquatic Ecology at Western Washington University.

Executive Summary

On July 12, 2021 a Hamer wetland scientist conducted a site assessment of the study area, the Whitmarsh landfill remediation site on Skagit County parcels P19676, P19684, P19707, P19713, and P19761. During the site assessment one wetland (with two wetland units, Unit A and Unit B) and the marine ordinary high watermark were identified and delineated within and outside of the study area. Wetland edges were also flagged; these delineations act as a regulatory boundaries from which critical areas buffers are measured. After reviewing historical aerial images, LiDAR, and using USACE field methodologies, Hamer scientists evaluated potential impacts from the proposed project on wetland and habitat functions and values. This report contains descriptions of the existing conditions of the study area and a preliminary impact assessment of the proposed project. Project design has not yet been finalized, and project impacts and mitigation will be quantified when project design is final. Project proponents will work in tandem with permitting agencies to establish the final design.

Chapter 1. Introduction

1.1 Purpose

The permit applicants, Wood PLC, are proposing a remediation project in the study area, the Whitmarsh Landfill remediation site on Skagit County parcels P19676, P19684, P19707, P19713, and P19761 (Appendix A). A Hamer Environmental (Hamer) wetland scientist conducted a site assessment of the study area on July 12, 2021, which consisted of the entire Whitmarsh landfill remediation, P19676, P19684, P19707, P19713, and P19761. The study area, is within the jurisdiction of the City of Anacortes (City) and subject to City of Anacortes Municipal Code (CAMC) regulations. CAMC regulations require that all applicants for land use development permits, construction permits, or land division comply with the City critical areas ordinance (CAO), Chapter 17.70 of the CAMC. This critical areas assessment report has been prepared to satisfy requirements of the City CAO for wetlands, and fish and wildlife habitat conservation areas (FWHCAs) within the study area.

Information gathered in this report is intended to assist project designers in avoiding and/or minimizing impacts to sensitive areas and species, and to provide information for regulatory reviewers. The report is anticipated to support review by the City, U.S. Army Corps of Engineers (USACE), and/or the Washington State Department of Ecology (Ecology), and Washington State Department of Fish and Wildlife (WDFW).

1.2 Proposed Project

The proposed project is a landfill remediation project for the Whitmarsh Landfill. The primary goal is to cap the contaminated landfill site to avoid potential leaching of contaminated materials into Padilla Bay and the greater Puget Sound. The proposed project would include vegetation removal, excavation, filling and grading, and other actives associated with capping contaminated soils. A landfill cover system will be used and would include placement of a bentonite (synthetic clay) seal, sand, compacted crushed rock, and cover soil. Perforated pipe with approximately 19 gas vents and monitoring wells would also be installed along the proximity of the solid waste and through the center of the site to allow for off-gassing and monitoring. A 15-foot-wide access road would also be installed to allow for site access for maintenance and monitoring. During the construction phase, traffic on South March Point Road is expected to increase throughout the duration of project installation. The construction plan would follow all Ecology and City of Anacortes Best Management Practices (BMPs) and stormwater protocols.

A detailed project background is provided in Appendix A.

1.3 Project Location

The study area is located at 9663 South March Point Rd, Anacortes, Washington and southeast of Anacortes (Figure 1). Study Area GPS coordinates are lat-lon: 48.463758°, -122.530635°. The legal geographic location is Township 34 North, Range 02 East, Section 6.

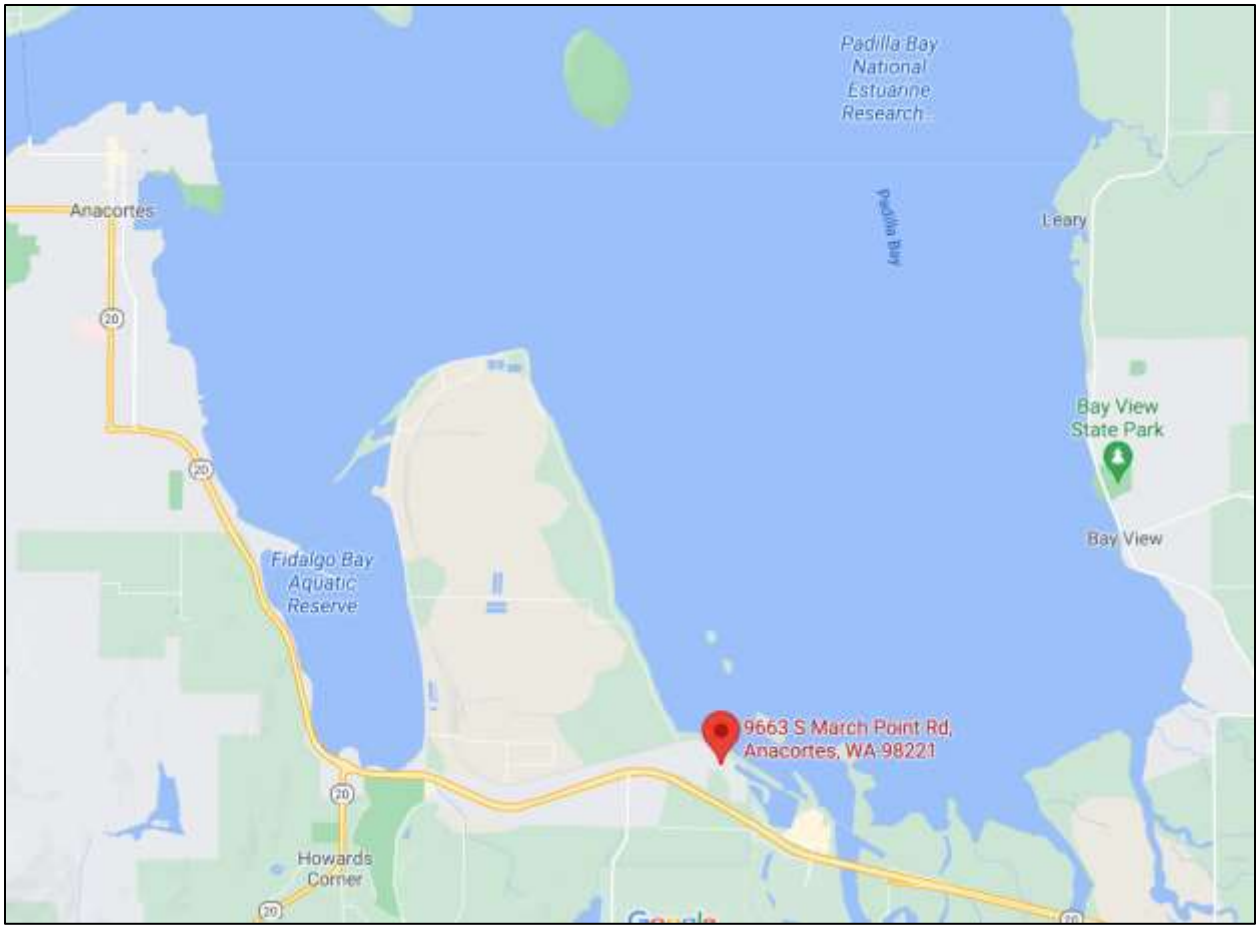

Figure 1. Project Area Location in red, southeast of Anacortes, WA (Google Maps).

Chapter 2. Methods

2.1 Definitions

Wetlands: "Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (33 CFR, Part 328.3).

Waters of the United States: "All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; All interstate waters including interstate wetlands; All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce…Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above." (33 CFR, Part 328.3). "Adjacent" is defined as bordering, contiguous, or neighboring.

Limits of jurisdiction in nontidal waters:

- in the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark;
- when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high-water mark to the limit of the adjacent wetlands;
- when the Water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland (33 CFR, Part 328.3).

Ordinary high water mark: "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." (U.S. Congress 1986).

2.2 Wetland Identification, Delineation, and Classification

Hamer scientists delineate wetlands according to local, state, and federal guidelines. Wetland resources are delineated using guidelines and methods described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) as amended with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0)* (USACE 2010). Wetland boundaries are surveyed using a Trimble GEOxt GPS unit.

Scientists use several tools to identify and classify plants and soils examined within the study area. Plant indicator status and scientific plant names are identified using the *National Wetland Plant List: 2014 Update of Wetland Ratings* (Lichvar et al. 2014) and any updates to the *National Wetland Plant List* (USACE 2016). Soil characteristics are recorded and classified using the *Field Book for Describing and Sampling Soils* (USDA, NRCS 2012). Hydric soil conditions are assessed using *Field Indicators of Hydric Soils in the United States, Version 8.1* (USDA, NRCS 2017).

Delineated wetlands are classified according to federal, state, and local systems. The

Classification of Wetlands and Deepwater Habitats of the United States [Federal Geographic Data Committee (FGDC) 2013] is a descriptive classification, based on physical attributes (i.e., plant community, soils, and water regime). Wetlands perform a variety of biological, physical (hydrologic), and chemical (water quality) functions. Wetlands are assigned a hydrogeomorphic (HGM) classification to more accurately assess the functions and values of each wetland. Functions and values for wetlands within the study area are classified under HGM and evaluated using the Washington State Wetland Rating System for Western Washington (Hruby 2014). Ecology divides wetlands into four hierarchical categories based on specific attributes such as rarity, sensitivity to disturbance, and functions (Hruby 2014). The Ecology classification hierarchy ranges from Category I wetlands, which exhibit outstanding features (rare wetland type, relatively undisturbed or a high sensitivity to disturbance, and high level of functions) to Category IV wetlands, which have the lowest levels of function and are often heavily disturbed.

Wetland buffer widths are assigned according to CAMC section 17.70. These standard buffer widths are based on the combination of wetland rating category, the habitat function score from the wetland rating form, and land use intensity. Levels of land use intensity are defined in Article 9 of the CAO. Additional building setback requirements from critical area buffers can be found in CAMC 17.70.

2.3 Regulatory Requirements

2.3.1 City of Anacortes Critical Areas Report (CAMC 17.70.330)

Critical area reports for wetlands must meet the requirements of this section. Critical area reports for two or more types of critical areas must meet the report requirements for each relevant type of critical area.

A. Preparation by a Qualified Professional. A critical area report for wetlands shall be prepared by a professional wetland scientist.

B. Area Addressed in Critical Area Report. The following areas shall be addressed in a critical area report for wetlands:

1. The project area of the proposed activity;

2. All wetlands and recommended buffers within three hundred feet of the project area. Critical area reports should consider wetlands and other critical areas within three hundred feet due to the maximum potential buffer size for wetlands. Critical area size and characteristics beyond the project area may be estimated through aerial photographic interpretation and discussions with agency staff if the adjacent property owner denies access; and

3. All shoreline areas, water features, floodplains, and other critical areas, and related buffers within three hundred feet of the project area.

C. Wetland Analysis. A critical area report for wetlands shall contain an analysis of the wetlands including the following site- and proposal-related information at a minimum:

1. A written assessment and accompanying maps of the wetlands and buffers within three hundred feet of the project area, including the following information at a minimum:

a. Wetland delineation and required buffers,

b. Existing wetland acreage,

c. Wetland category,

d. Vegetative, faunal, and hydrologic characteristics,

e. Soil and substrate conditions,

f. Topographic elevations, at two-foot or five-foot contours (as determined by the administrator), and

g. A discussion of the water sources supplying the wetland along with documentation of hydrologic regime (locations of inlet and outlet features, water depths throughout the wetland, evidence of recharge or discharge, evidence of water depths throughout the year—drift lines, algal layers, moss lines, and sediment deposits);

2. A discussion of measures, including avoidance, minimization, and mitigation, proposed to preserve existing wetlands and restore any wetlands that were degraded prior to the current proposed land use activity;

3. A habitat and native vegetation conservation strategy that addresses methods to protect and enhance on-site habitat and wetland functions;

4. Functional evaluation for the wetland and adjacent buffer using a local or state agency staff-recognized method and including the reference of the method and all data sheets;

5. Proposed mitigation, if needed, including a written assessment and accompanying maps of the mitigation area, including the following information at a minimum:

a. Existing and proposed wetland acreage,

b. Vegetative and faunal conditions,

c. Surface and subsurface hydrologic conditions including an analysis of existing and future hydrologic regime and proposed hydrologic regime for enhanced, created, or restored mitigation areas,

d. Relationship within watershed and to existing waterbodies,

e. Soil and substrate conditions, topographic elevations,

f. Existing and proposed adjacent site conditions,

g. Required wetland buffers (including any buffer reduction and mitigation proposed to increase the plant densities, remove weedy vegetation, and replant the buffers),

h. Property ownership,

i. Associated wetlands and related wetlands that may be greater than three hundred feet from the subject project,

j. A map drawn to a scale appropriate to show relevant features and information of the development proposal site and adjacent area,

k. A discussion of ongoing management practices that will protect wetlands after the project site has been developed; including proposed monitoring and maintenance programs;

6. A bond estimate for the installation (including site preparation, plant materials and installation, fertilizers, mulch, stakes) and the proposed monitoring and maintenance work for a minimum of five years.

Chapter 3. Desktop Review

Prior to conducting fieldwork, Hamer scientists conducted a desktop review of the study area and vicinity. Information was gathered from local, state, and federal sources to obtain a comprehensive view of the area's natural resources and ecological processes. The following publicly available databases were reviewed:

- City of Anacortes GIS maps (City of Anacortes 2020)
- Skagit County iMap (Skagit 2021)
- Washington State Water Quality Atlas (Ecology 2020)
- U.S. Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) (USFWS 1996)
- Washington State Department of Natural Resources (WDNR) Wetlands of High Conservation Value (WDNR 2020)
- WDNR Forest Practices Application Mapping Tool (WDNR 2020)
- Federal Emergency Management Agency (FEMA) Flood Map Service Center (FEMA 2020)
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA, NRCS 2020)
- WDFW Priority Habitat and Species (PHS) on the Web (WDFW 2020)
- USFWS Information for Planning and Consulting (IPaC) (USFWS 2020)

3.1 Landscape Setting

The study area lies in the Puget Lowlands where most areas are either gently sloped or flat. The study area is within the Frontal Padilla Bay Watershed on land that zoned for "heavy manufacturing" use.

3.2 Watershed Description

The study area is within Water Resource Inventory Area (WRIA) 3, the Lower Skagit-Samish, and the Fidalgo Island-Frontal Padilla Bay sub-watershed, HUC 171100020303 (Ecology 2020). The watershed has two water quality improvement (WQI) projects in development, the Padilla Bay Bacteria Total Maximum Daily Load (TMDL) and the Puget Sound Nutrient Source Reduction Project, for high levels of total phosphorous, bacteria, and dissolved oxygen (Ecology 1998).

A water quality map is shown in Appendix B (Figure B-1).

3.3 Soils

The local soil survey identifies one soil types within the approximate study area boundaries. Table 1 summarizes the NRCS custom soil resource report for the study area (USDA, NRCS. 2020). The soil map for the approximate study area boundaries is attached in Appendix B (Figure B-2). The soil type indicated was rated as hydric.

Table 1. Summary of mapped soil type within the approximate study area (Custom Soil Resources Report, USDA, NRCS 2020).

Map Unit	Map Unit Name	Hydric Soil	Typical Profile	Properties
72	Hydraquents, tidal	Yes	0 to 7 inches: ashy loam 7 to 17 inches: very gravelly ashy loam 17 to 31 inches: clay loam 31 to 60 inches: silty clay	Landform: Hillslopes, terraces Parent material: Volcanic ash, glaciolacustrine deposits, and glacial drift About zero inches to water table. High available water storage in profile.

3.4 Previously Mapped Wetlands and Streams

The USFWS NWI maps estuarine and marine wetlands that show the historic extent of wetlands of the Whitmarsh Landfill (Figure 2). The NWI map also shows the very large contiguous wetlands and mudflats associated with the Swinomish Channel and permanently flooded deepwater habitat with an unconsolidated bottom. The WDNR Natural Heritage Information System has no records of rare plants, high quality wetlands or ecosystems within the study area (WDNR 2020b).

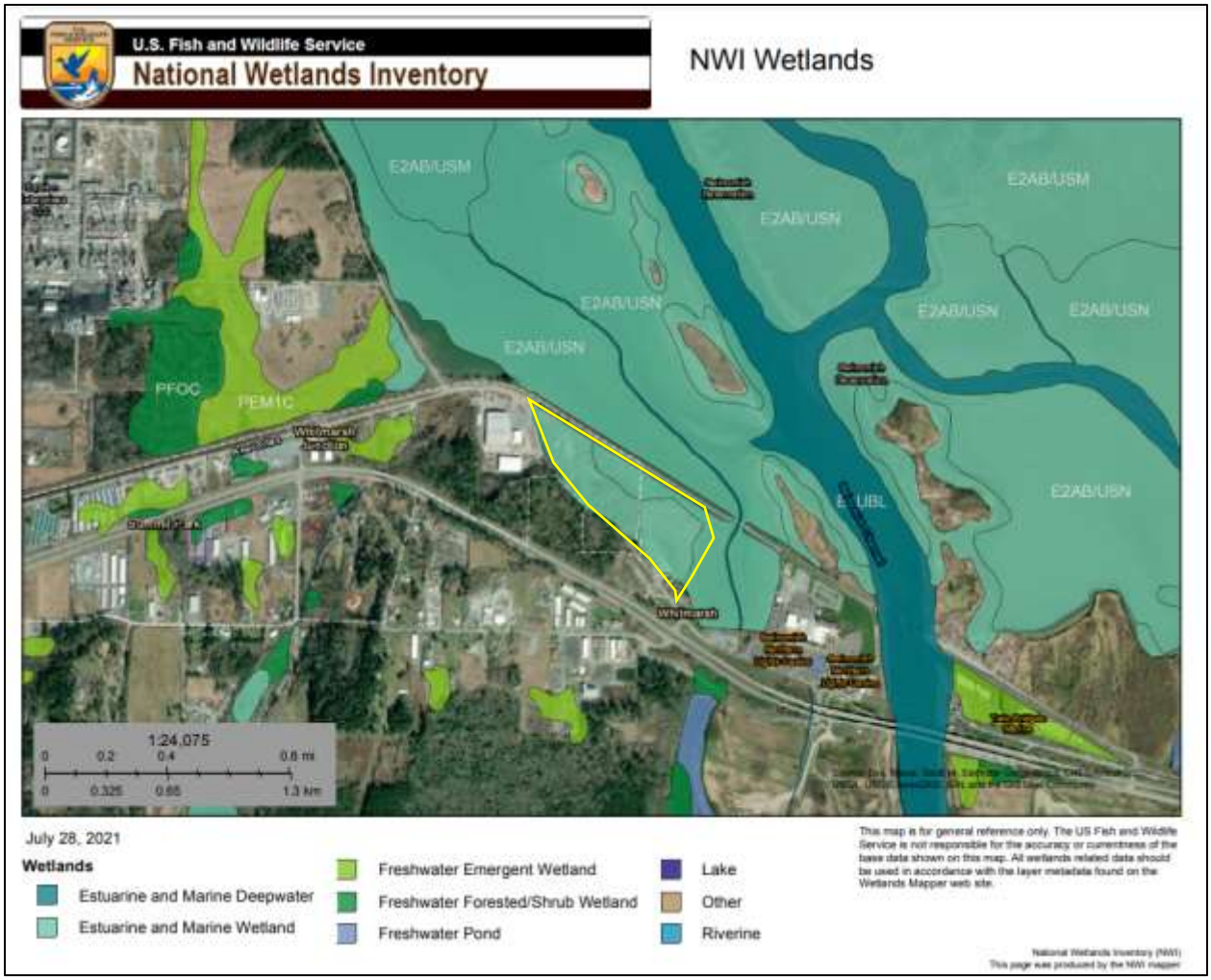

Figure 2. Mapped NWI surface waters and wetlands and approximate study area boundaries in yellow (USFWS 1996).

3.5 Frequently Flooded Areas

FEMA Flood Map Service Center maps the study area within Flood Zone V4 with a base flood elevation of 9 feet (FEMA 2020).

3.6 State Priority Habitat and Species

WDFW manages state PHS and document the following PHS to have the potential to occur within the study area (WDFW 2020a). Table 2 summarizes the PHS report for the study area, these include.

Table 2. Summary of WDFW PHS Report for the study area.

Common Name	Scientific/ Technical Name	Washington State Listing Status	Priority Area
Mammals			
Big brown bat	*Eptesicus fuscus*	PHS Listed Occurrence	N/A
Little Brown Bat	*Myotis lucifugus*	PHS Listed Occurrence	N/A
Habitat			
Estuarine and Marine Wetland	N/A	PHS Listed Occurrence	Aquatic Habitat
Waterfowl and Shorebird Concentrations	N/A	PHS Listed Occurrence	Regular Concentration

Source: Washington Department of Fish and Wildlife (WDFW 2020) PHS on the Web.

3.7 Federally Threatened and Endangered Species

Listed T&E species under the Endangered Species Act (ESA) and their critical habitat are managed by USFWS and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA). Table 3 summarizes the species listed by USFWS as potentially affected by activates within the study area. According to USFWS, Bull Trout (*Salvelinus confluentus*) critical habitat exists within the study area and larger Puget Sound (USFWS 2020).

Table 3. Federally listed T&E species with potential to be in and near the study area.

Common Name	Scientific Name	ESA Status	Jurisdiction	Critical Habitat within Study Area?
Fishes				
Bull Trout	*Salvelinus confluentus*	Threatened	USFWS	Yes, Critical Habitat includes Puget Sound
Dolly Varden	*Salvelinus malma*	PSAT	USFWS	No critical habitat designated
Mammals				
Gray Wolf	*Canis lupus*	Endangered	USFWS	No critical habitat designated
Birds				
Marbled Murrelet	*Brachyramphus marmoratus*	Threatened	USFWS	No
Streaked Horned Lark	*Eremophila alpestris strigata*	Threatened	USFWS	No
Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened	USFWS	No
Plants				
Golden Paintbrush	*Castilleja levisecta*	Threatened	USFWS	No critical habitat designated

Source: U.S. Fish & Wildlife Service (USFWS 2020) IPaC.

Chapter 4. Existing Conditions

Hamer scientists conducted a site assessment of the study area on May 3, 2021. During the site visit one wetland, with two wetland units, was assessed outside of the study area boundaries. Figure 3 is an overview of the study area existing conditions (Appendix B). Site wetlands were delineated per USACE methodologies.

Figure 3. Study Area Existing Conditions overview (see also Appendix B).

4.1 Wetlands

One wetland with two wetland units, Wetland Unit A and Wetland Unit B, was delineated within and outside of study area boundaries. Wetland boundaries were determined where indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were present. USACE wetland determination data forms were completed with field observations from four sample plots within the study area (Appendix C). Two upland test pits were logged adjacent to the wetland test pit in an area where wetland indicators were generally absent. The wetland categories were determined using the current Ecology rating system (Hruby 2014) (Appendix D). Wetland buffers were determined based on the protection standards of the County regulations.

Table 4 summarizes the characteristics of wetlands and critical areas.

Table 4. Summary of delineated wetlands and streams.

Critical Area	Wetland Classification			Size (acres)	Habitat Score	Land Use Intensity	Proposed Buffer Width (ft)
	FGDC[1]	HGM	Type or Category[2]				
Wetland Unit A	E2EM1/USN	Estuarine	I	42.9[3]	n/a	Moderate	225
Wetland Unit B	PEM/PSS/PFO	Depressional	II	0.85	7	Moderate	110
Padilla Bay Shoreline	n/a	n/a	Shoreline of the State	n/a	n/a	Moderate	100

[1]FGDC (formerly Cowardin) or NWI Class based on vegetation: E=estuarine, 2=intertidal subsystem, EM=emergent, 1= subclass persistent, US=unconsolidated shore, N=regularly flooded.
[2] Wetlands rated according to Ecology (Hruby 2014) and City of Anacortes Critical Areas Ordinance.
[3]Boundaries of wetland were not delineated to their full extent, wetland size is an estimate based on field observations, aerial imagery, and LiDAR. Wetland unit was separated from the larger estuarine wetland complex at the rail road bridge spanning the estuary.

4.1.1 Wetland Unit A

Wetland Unit A is estuarine and receives surface water from Padilla Bay and upslope freshwater areas, including stormwater from South March Point Road (Figure 4).

Figure 4. Overview of existing conditions of Wetland Unit A.

Vegetation within Wetland Unit A is dominated by herbaceous saltmarsh species such as saltmarsh bulrush (*Schoenoplectus maritimus*) and seaside arrowgrass (*Triglochin maritima*) and there are large mudflat areas that contain no vegetation. Soils are highly organic and have a mucky consistency in upper layers. Stormwater from South March Point Road, culverts, and the linear ditch-wetland portion of Wetland Unit A (Figure 3, Table 5) each appear to convey surface water to the wetland during wet periods. The ditch-wetland portion of Wetland Unit A was largely unvegetated in lower sections (near the connection to the estuary).

Table 5. Summary of wetland indicators in Wetland Unit A (USACE Wetland Determination Data Forms).

Dominant Vegetation [1]	Soils	Hydrology
saltmarsh bulrush (*Schoenoplectus maritimus*) OBL seaside arrowgrass (*Triglochin maritima*) OBL	Depleted Matrix (F3)	Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Algal Mat or Crust (B4) Iron Deposits (B5) Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)

[1] OBL=Obligate

According to the current Ecology (2014) guidance, the wetland rating system *cannot* be used to score functions for estuarine wetlands with a salinity greater than 0.5 parts per thousand (ppt). Ecology's rating system can however, be used to rate the wetland based on special characteristics. Salinity measurements were not collected; however, the wetland unit is tidally connected to the Swinomish Channel and Padilla Bay mud flats which have a salinity of 28.5 ppt., which is likely the approximate salinity of the wetland unit. Unit A was determined to be Category I based on special characteristics (Appendix D). According to the CAMC, Category I wetlands with a high level of habitat function (as determined by Ecology's habitat functional score) would require a *225-ft buffer*. Although Unit A's habitat functions could not be scored using the rating form, they are likely high due to connectivity to high quality protected aquatic habitats in and around the Padilla Bay Aquatic Reserve.

4.1.1 Wetland Unit B

Wetland Unit B appears to be primarily influenced by freshwater inputs, as determined by observed freshwater vegetation, such as skunk cabbage (*Symplocarpus foetidus*), and historic salinity measurements (Appendix B). There was evidence of unidirectional flow in areas where surface water was observed (Figure 5). The unit was rated separately from Wetland Unit A given its different hydrologic regime and vegetation. Lower sections of the ditch did appear to be tidally influenced and contained salt-tolerant species; however, freshwater species gradually become dominant in the norther sections of the ditch. The unit "break" was determined where skunk cabbage was first observed.

Figure 5. Overview of existing conditions of Wetland Unit B.

Vegetation within Wetland Unit B is dominated by facultative and obligate species such as red alder (*Alnus rubra*), cattail (*Typha sp.*), and skunk cabbage**,** along the linear ditch-channel. Soils are organic in upper layers containing redox depletions below six inches. Stormwater from South March Point Road, culverts, and the landfill site, and each appear to convey surface water to the wetland during wet periods (Table 6).

Table 6. Summary of wetland indicators in Wetland Unit B (USACE Wetland Determination Data Forms).

Dominant Vegetation [1]	Soils	Hydrology
red alder (*Alnus rubra*) salmonberry (*Rubus spectabilis*) cattail (*Typha sp.*) skunk cabbage (*Symplocarpus foetidus*)	Depleted Matrix (F3)	Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Iron Deposits (B5) Sparsely Vegetated Concave Surface (B8) FAC-Neutral Test (D5)

[1] OBL=Obligate

Using the current Ecology (2014) wetland rating system the wetland was rated based on functions (Appendix D). The wetland was determined to be Category II with a moderate habitat score of 7. According to the CAMC, Category II wetlands with a moderate level of habitat function (as determined by Ecology's habitat functional score) would require a 110-ft buffer.

4.2 Shorelines of Padilla Bay and Inner Lagoon

The Padilla shoreline adjacent to the study area was evaluated onsite and the OHWM was determined in conjunction with available information (including LiDAR topographical images and WDNR shoreline data). The shoreline is armored and composed of large boulders that make up the BNSF railway, or is contiguous with the wetland boundary (Figure 3). Padilla Bay is a shoreline of the state, and the study area is within the 200-foot shoreline jurisdiction according to the delineated OHWM. Indicators of the OHWM were prevalent and obvious; they included water marks, persistent salt-tolerant vegetation, and presence of marine lichens (Figure 6).

Figure 6. Overview of existing conditions of the Padilla Bay OHWM (east of railway).

Within the inner lagoon, indicators of the OHWM were consistent with the estuarine wetland they included water marks, persistent salt-tolerant vegetation, marine algae, and staining of iron rich sediment (Figure 7). The boundary of the marine OHWM was delineated east of the ditch-wetland area where marine waters were observed to be the dominant source of hydrology.

Figure 7. Overview of existing conditions of the Inner Lagoon OHWM.

4.3 Uplands

The study area and its vicinity appear to have been significantly modified by the installation of paved roads, the BNSF railway, and industrial practices, including the adjacent March Point Refinery. Undeveloped forested areas in the vicinity are mixed coniferous-deciduous where Western red cedar (*Thuja plicata*), Douglas fir (*Psuedotsuga menziesii*), and big-leaf maple (*Acer macrophyllum*) are the dominate tree species. Shrub vegetation is composed of salmonberry (*Rubus spectabilis*) and Himalayan blackberry (*Rubus armeniacus).* The dominant emergent vegetation is swordfern (*Polystichum munitum*). Upland soils in the study area are composed of well drained silt loam and sandy silt loam with high chroma matrices (Appendix C).

4.4 Observed Wildlife and Habitat Features

March Point Heronry is in the proximity to the Whitmarsh Landfill. A Heron Management Plan would be created in conjunction with the project.

A variety of songbirds were observed during the field investigation. Wildlife expected within the area include black-tailed deer (*Odocoileus hemionus*), a variety of shrews, chipmunks, mice, voles, owls, raptors, falcons, and songbirds. All wetlands are likely to provide habitat for invertebrates: insects, spiders, and freshwater gastropod mollusks.

Chapter 5. Analysis of Functions and Values

One Category I wetland unit, requiring a 225-ft protective buffer, and one Category II wetland unit, requiring a 110-ft protective buffer, were delineated within the study area. The wetlands currently provide high levels of hydrologic, water quality, and habitat function based on professional opinion and according to the rating summary (Appendix D). The following functions were separated by the two distinct wetland areas, the estuarine (inner lagoon, Unit A) portion and the linear ditch-wetland (Unit B) at the southern boundary of the study area.

Important habitat, hydrologic, and water quality functions that are provided by the **estuarine Wetland Unit A** include:

- Large marine drift woody debris that provide refugia and prey recruitment;
- Emergent marine vegetation for marine birds nesting;
- Breeding areas, escape, refugia, and food production for a variety of species (Hruby 2014).
- Trapping, removing, and filtering pollutants from stormwater runoff;
- Water storage, which helps prevent flooding.

Important habitat, hydrologic, and water quality functions that are provided by the **ditch Wetland Unit B** include:

- Large downed woody debris that provide refugia and prey recruitment;
- Trees, shrubs, and emergent vegetation for bird nesting and refugia;
- Breeding areas, escape, refugia, and food production for a variety of species (Hruby 2014).
- Trapping, removing, and filtering pollutants from stormwater runoff;
- Slowing the flow of surface water during large storm events, reducing flooding and erosion;
- Water storage, which helps prevent flooding.

The exiting habitat buffer within the study area is largely made up of the landfill remediation site which is composed of fill material of various sizes, Himalayan blackberry, and some large trees including red alder, and big-leaf maple. These soils have been contaminated by historic landfill operations and have allowed for potential leaching of contaminated materials into Padilla Bay and Puget Sound. Some vegetation would need to be removed in order to cap the landfill site; however, this vegetation is largely composed of invasive Himalayan blackberry, and the ecological benefits of capping the contaminated site clearly outweigh removal of onsite vegetation. Approximately 1.6 acres of shrub habitat would be created as part of the remediation project.

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Chapter 6. Impact Analysis

Hamer scientists used information gathered from the desktop review, field observations, and information obtained from project designers to analyze potential effects of the proposed project, and cumulative effects, on shoreline ecological functions and critical areas. This chapter includes recommendations on how adverse environmental impacts can be avoided and/or minimized during and after development of the proposed project. Project design has not yet been finalized, and project impacts and mitigation will be quantified when project design is final. Project proponents will work in tandem with permitting agencies to establish the final design.

6.1 Mitigation Sequencing Analysis

The mitigation sequencing process is a series of steps that are required to be followed to avoid and minimize impacts to critical areas and their buffers wherever practicable. The following analysis of the mitigation sequencing steps was completed for the proposed project.

Avoiding the impact

The proposed project proposes to remove the riprap at the wetland/shoreline and in and around the ditch wetland, therefore wetland and buffer impacts cannot be avoided to meet the project purpose and need. There would be excavation, vegetation removal, filling and grading within the buffer, and increased traffic during construction.

Minimizing the impact

The proposed project is designed to avoid and minimize impacts to critical areas and their associated buffers to the extent feasible. Work below OHWM would be completed during low tides to avoid in-water work and minimize turbidity in the water column and indirect effects to species and habitats in the vicinity.

Rectifying the impact

Vegetated buffer areas would be impacted by construction during the capping phase of the remediation project; however, ultimately the area would be restored or enhanced to benefit ecological and water quality conditions in Padilla Bay. Plantings would also be installed to strengthen habitat and water quality functions.

Reducing or eliminating the impact over time

Using BMPs and Low Impact Design (LID) elements would reduce potential adverse impacts over the life of the project. The cleanup project is also expected to significantly reduce leachate seepage to surface water and groundwater, control venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage (Appendix A).

Compensating for the impact

The project proposes to compensate for project impacts by installing 1.6 acres of native shrubs.

6.2 Functional Assessment

The functions of the existing conditions in the study area and adjacent areas were evaluated based on best professional judgment, ecological knowledge of the site, and the City of Anacortes CAO.

6.2.1 Functions of Onsite Areas to be Impacted

The onsite conditions in the wetland buffer resemble a recently overgrown historic industrial

area. Until approximately 2010, the northern two-thirds of the Site was occupied by a cedar log sawmill, which had operated in this location since the 1980s. The former mill area currently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building (Appendix A). As observed during the July site visit, most of the central area has been cleared, and is composed of contaminated fill materials under approximately 18 inches of topsoil; however, there is some canopy cover along the southern edge of the study area (near South March Point Road) and the southeastern quarter of the study area. These areas (composed of predominantly Himalayan blackberry and a few trees) likely provide habitat for many common wildlife species. Due to the Site's proximity and potential impacts to Padilla Bay and the inner lagoon, it was identified by Ecology as a high priority cleanup area under the Puget Sound Initiative (Appendix A).

6.2.2 Functions of the Proposed Mitigation Area

The existing riprap would be removed from the shoreline and the shoreline slope will be flattened and the area would be covered with a multi-layer cap system. The upper 18 inches of the cap system will be of suitable soil to facilitate development of vegetative communities. The selected vegetation would include a variety of native shrubs. Approximately 1.6 acres of habitat will be created upon completion of the project, providing high quality habitat for area species. Trees will not be planted due to their tendency to have root systems that could penetrate the cover soils and possibly damage the cap system. A temporary watering system will be installed to provide supplemental water for the plantings (Appendix A).

6.3 Recommendations to Avoid and/or Minimize Impacts

All new development and redevelopment must conform to the standards and minimum requirements set by the Ecology Stormwater Management Manual (SMM) for Western Washington. The proposed project is required to control erosion and sediment during construction and to permanently stabilize soil exposed during construction. According to Ecology, all new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters. Projects must consider all Construction Stormwater Pollution Prevention Plan (SWPPP) Elements listed in the SMM that pertain to the project site. Recommended BMPs include (Ecology 2019):

- Preserving natural vegetation where possible;
- Creating a buffer of natural vegetation;
- Construct silt fencing, wattles, and brush barriers;
- Apply temporary and permanent seeding; and
- Apply topsoil/composting and mulching.

The proposed project would decrease the amount of impervious surface within the study area. The cleanup project is expected to significantly reduce leachate seepage to surface water and groundwater, venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage (Appendix A). Surface runoff from the site will all be captured by the installed stormwater control measures and the constructed surface drainage system on and around the landfill. Project specific stormwater design elements may include:

- Tree retention and planting of native species;
- Minimized area of impermeable surfaces.
- Surface drainage system on and around the landfill will capture surface runoff from the site

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Appendix A – Site Plan and Background Information

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Background (from Wood PLC)

The March Point Landfill (Site) started as an informal roadside dump in the 1950s and was later operated by Skagit County as a landfill from 1961 until its closure in 1973. As part of closure requirements in 1973, the Site was graded and covered with 2-3 feet of soil. The soil cap was installed in accordance with regulations at the time including minimum functional standards for soil waste handling, enacted by Washington State under Chapter 173-301 WAC (filed in 1972). Due to the Site's proximity and potential impacts to Padilla Bay and the inner lagoon, it was identified by Ecology as a high priority cleanup area under the Puget Sound Initiative. Until approximately 2010, the northern two-thirds of the Site was occupied by a cedar log sawmill, which had operated in this location since the 1980s. The former mill area currently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building.

In 2014 and 2015, approximately 44,000 cubic yards of wood waste debris from the sawmill was hauled off site and recycled as compost material; an estimated 13,000 cubic yards of wood waste debris mixed with rock remains on site. Most of this material is stockpiled in two piles southeast of the sawmill foundations. The rest of the residual wood waste is located near the former mill building foundation.

The remedial investigation showed the following exceedances of the preliminary cleanup levels:

- Soil: total and dissolved metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons in the gasoline range and oil ranges, benzene, semivolatile organic compounds (SVOCs), and pesticides.
- Groundwater: total and dissolved metals, PCBs, benzene, SVOCs, pesticides.
- Seeps: total and dissolved metals, benzene, the SVOC 1-methylnaphthalene, PCBs, the pesticide 4,4'-DDE.
- Surface water: total and dissolved metals, benzene, SVOCs, and the pesticide 4,4' DDD.

A sediment investigation and watershed study was performed at the Site in a series of events from 2008 through 2011. The results of the sediment investigation concluded that discharges from the landfill do not have a negative effect on the sediment biota. Therefore, no impacts on sediments in the inner lagoon or Padilla Bay associated with the landfill were identified.

In addition, landfill gas (LFG) monitoring in 2011 and 2012 revealed elevated methane concentrations within the wood waste which was placed over the original soil cover. The highest concentrations of methane generally coincided with the thickest accumulations of wood waste. Since only a portion of the wood waste remains, the concentrations of LFG should be much lower today.

A conceptual site model was developed that suggests that areas exist along the landfill boundary where groundwater within the solid waste is seeping, or has the potential to seep, into surface water. The conceptual site model showed the exposure pathways and receptors for human health receptors are as follows:

- Direct human exposure to solid waste through construction activities.
- Seasonal infiltration of surface water into the solid waste, causing discharge of groundwater to the inner lagoon through seeps, where it could eventually affect marine biota.
- Migration of shallow groundwater though the Bay Mud into the underlying Lower Aquifer and subsequent discharge to surface waters or marine sediment where it could affect marine biota.
- Potential exposure of solid waste through erosion and direct release to surface waters/marine sediment of the inner lagoon where it could affect marine biota.
- Volatilization, dust emission, and inhalation of chemicals and methane gas generated from solid waste.

Project Description

Several remedial alternatives were developed for this site and were evaluated using seven criteria: protectiveness; permanence; long term effectiveness; short term risk; technical and administrative implementability; public concerns; and cost. In addition, the restoration time frame for each alternative was considered and a disproportionate cost analysis was performed for the alternatives.

Based on this evaluation, the selected alternative was the installation of a Geosynthetic Clay Laminated Liner (GCLL) cap. The alternative includes:

- Demolition of the structures on site;
- Moving solid waste (45,000 cubic yards), including riprap on the shorelines, from the edges of the landfill inward, to allow construction of a permanent cap without expanding the footprint of the landfill.
- Grading the waste to a mound per the Minimum Functional Standards of WAC-173-304 to promote stormwater runoff.
- Installing enhanced GCLL extending to the Bay Mud and constructing a perimeter access road around the landfill. The engineered cap will minimize or eliminate infiltration of groundwater into the landfill and the GCLL would minimize discharge of groundwater from the landfill to surface waters.
- Treating wastewater (1.3 million gallon) generated during the construction work.
- Installing a landfill gas (LFG) collection system, which would vent LFG to the atmosphere, as well as groundwater collection/treatment as needed to prevent off-site migration.
- Installing stormwater control measures and constructing a surface drainage system on and around the landfill.
- Installation of a perimeter road for access to wells and the LFG vent system.
- Installation of stubouts for future use of public water and electricity.
- Providing institutional and engineering controls.
- Performing long-term monitoring of groundwater (quality and levels for hydraulic control purpose), seepage, LFG, and the landfill closure facility.
- Institutional controls will be implemented when the cleanup action is complete including installation of a permanent chain link fence around the perimeter of the landfill to limit site access.

The existing riprap will be removed from the shoreline and the shoreline slope will be flattened to 5H:1V and constructed with a multi-layer cap system, the upper 18 inches of which will be of suitable soil to facilitate development of vegetative communities. The vegetation that will be selected will include a variety of native shrubs; however, trees will not be planted due to their tendency to have root systems that could penetrate the cover soils and possibly damage the GCLL. A temporary watering system will be installed to provide supplemental water for the plantings. Approximately 1.6 acres of habitat will be created upon completion of the project. The cleanup project is expected to significantly reduce leachate seepage to surface water and groundwater, control LFG venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage.

Prior to construction, a Heron Management Plan for the March Point Heronry will be prepared. Work will include conducting noise monitoring during the breeding season (April through July) the year prior to anticipated construction that will establish background noise levels; identifying daily and seasonal noise restrictions; and propose mitigation actions. The established noise levels will be compared against the anticipated construction noise levels and durations.

Recommendations will be developed for the construction activities. Finalization of the Heron Management Plan will likely include coordination with the City of Anacortes, Ecology, and local stakeholders.

Compliance monitoring will include construction performance monitoring to ensure the work is performed in compliance with the project requirements. Post-construction performance monitoring of groundwater, seeps, LFG, and stormwater after will be conducted after construction of the landfill cap is complete to determine (1) whether the cap is performing as expected, (2) whether leachate is continuing to seep from the landfill into Padilla Bay, and (3) whether lateral migration of groundwater into the solid waste or lateral migration of LFG away from the landfill is occurring. Ecology will review the selected cleanup action every five years to ensure protection of human health and the environment.

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Appendix B – Supplementary Figures

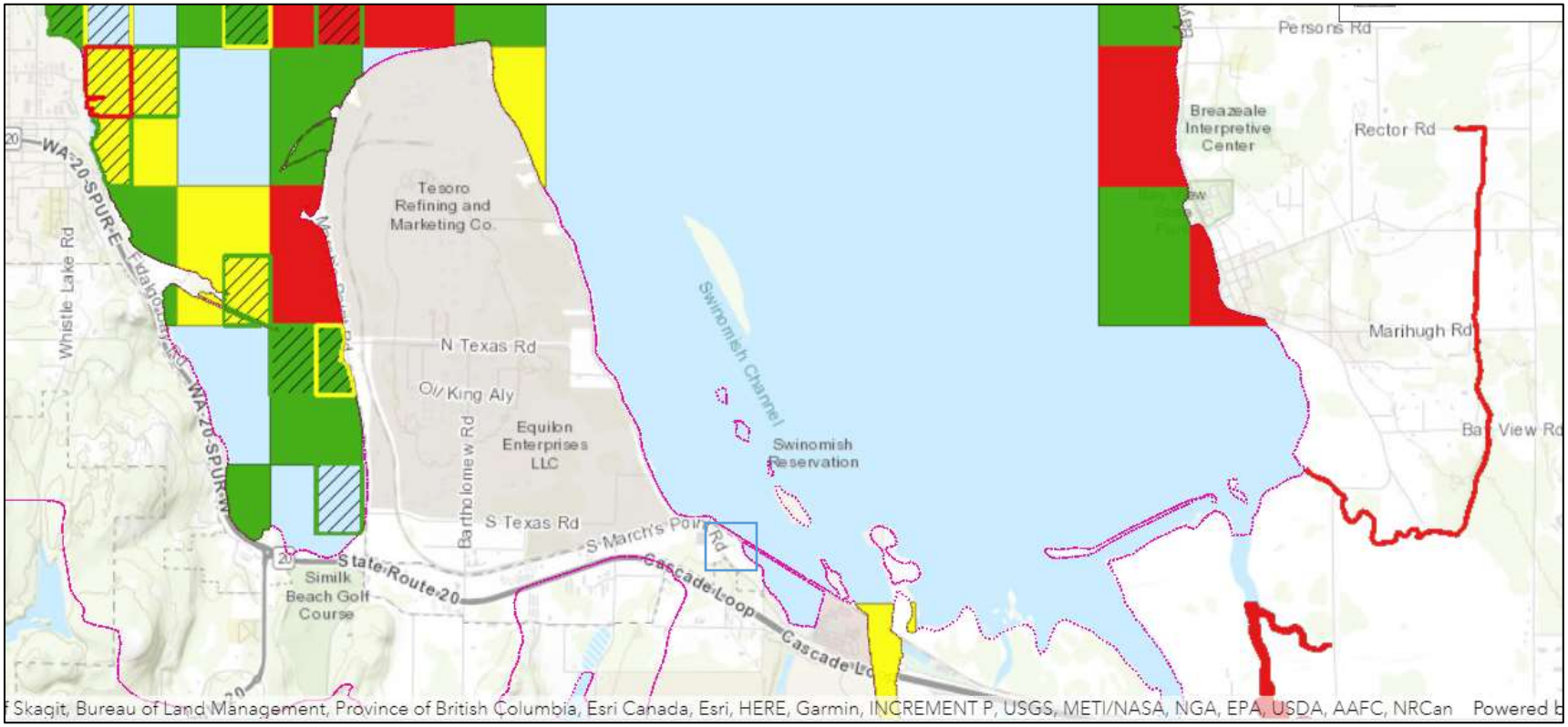


Figure B-1. Assessed waters within Fidalgo Island-Frontal Padilla Bay sub-watershed. Study area in blue (Ecology 2020).

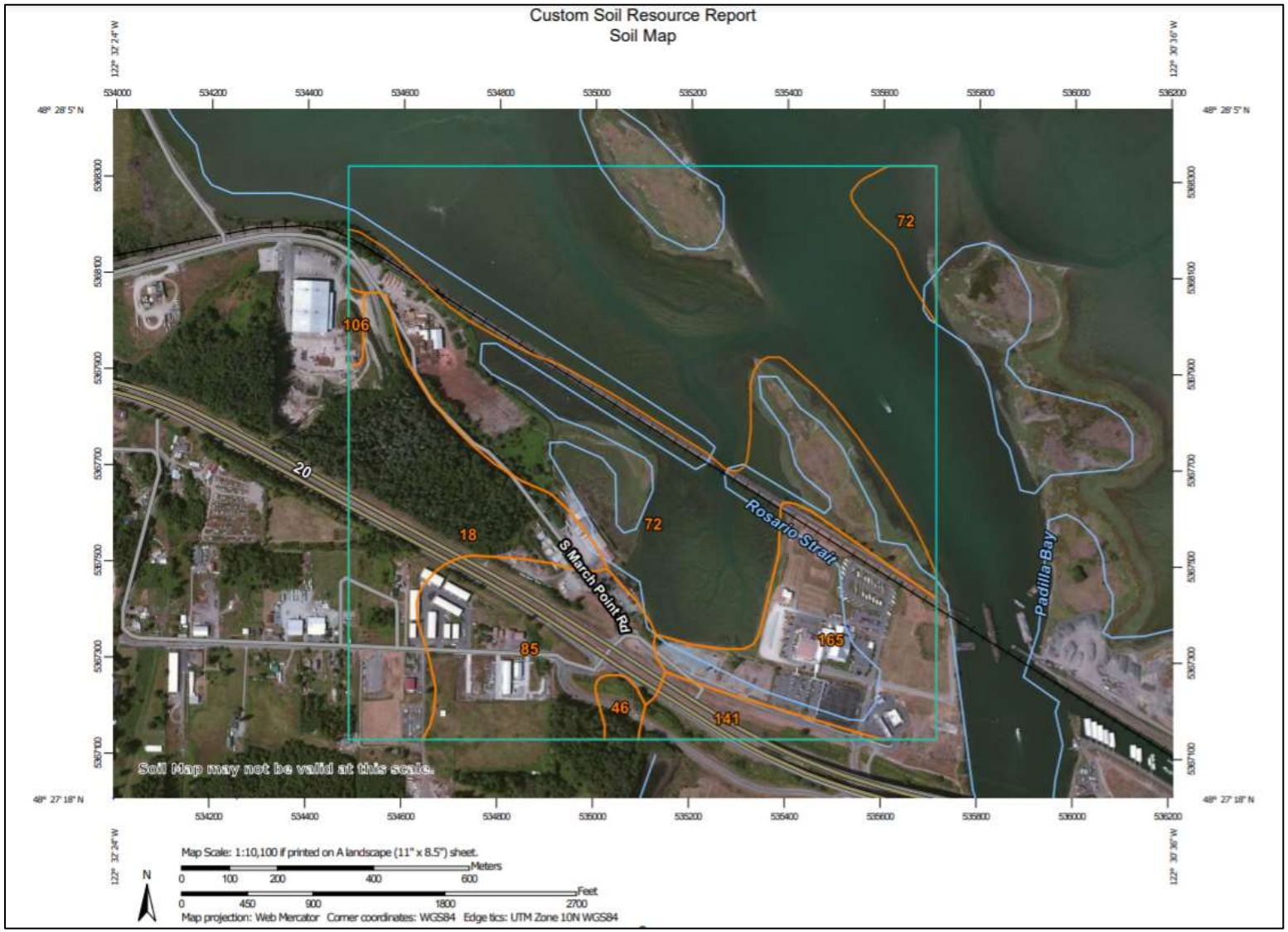
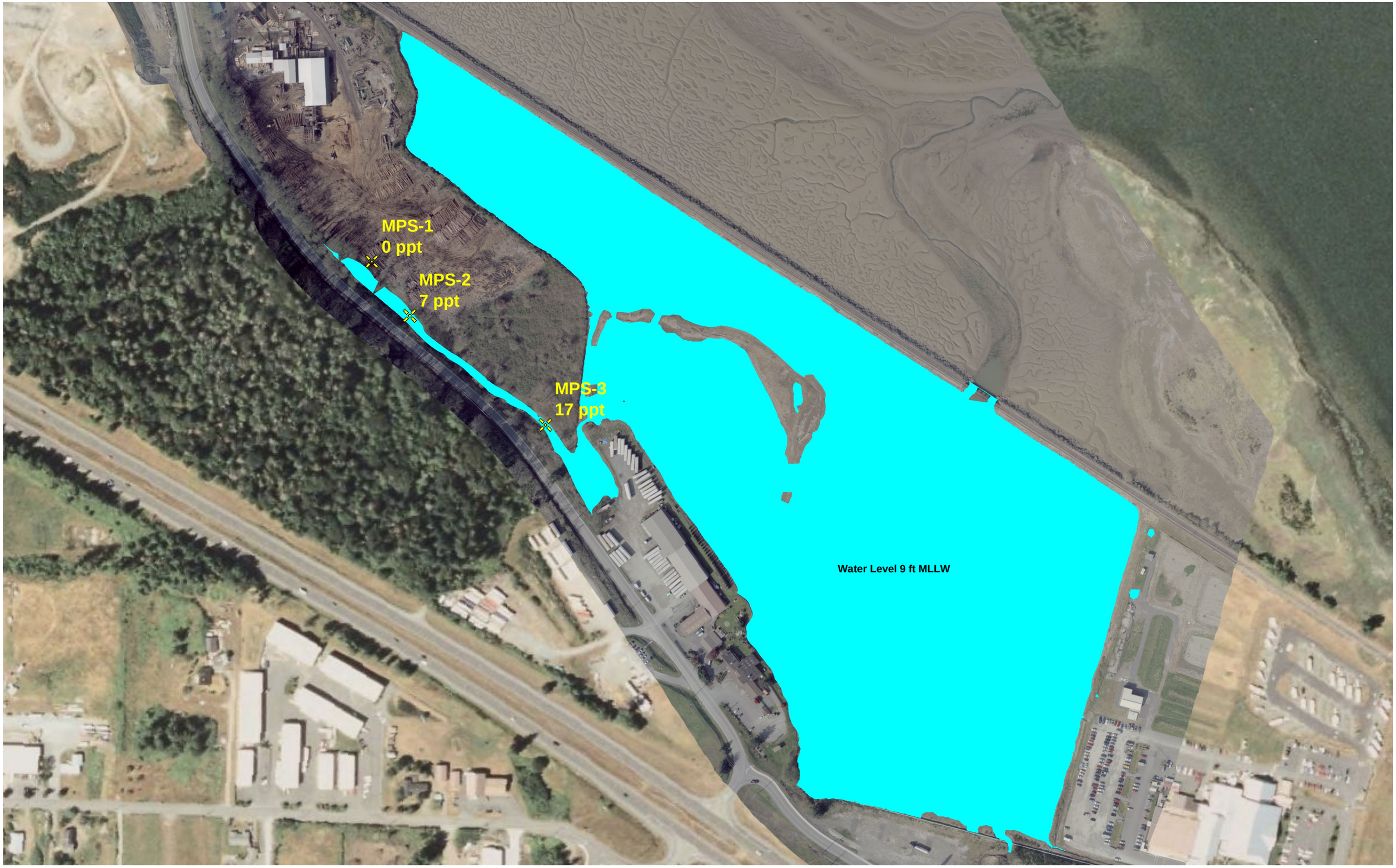


Figure B-2. Custom soil map of study area.


MPS-1
0 ppt
MPS-2
7 ppt
MPS-3
17 ppt
Water Level 9 ft MLLW

Whitmarsh Landfill

Remediation Project
Anacortes, WA

August 2021

NAD 1983 HARN State Plane Washington North FIPS 4601 (US Ft)

Map Created By: A. Crispin and K. Ritchie

- Soil Pits
- Marine OHWM
- Wetland Unit A
- Wetland Unit B
- 225-foot Wetland Buffer (Cat. I)
- 110-ft Wetland Buffer (Cat. II)

hamer.

Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

Appendix C – Wetland Determination Data Forms

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WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Whitmarsh Landfill Wetland Delineation | City/County: Skagit | Sampling Date: 7/12/2021

Applicant/Owner: WSDOT | State: WA | Sampling Point: SP-A1

Investigator(s): Adam Crispin | Section, Township, Range: S6, T34N, R02E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A | Lat: 48.463758° | Long: -122.530635° | Datum: NAD83HARN

Soil Map Unit Name: Hydraquents, tidal | NWI Classification: E2EM1/USN

Are climatic / hydrologic conditions on the site typical for this time of year? ◉ Yes ○ No (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ◉ Yes ○ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	◉ Yes	○ No	**Is the Sampled Area within a Wetland?**	◉ Yes	○ No
Hydric Soil Present?	◉ Yes	○ No			
Wetland Hydrology Present?	◉ Yes	○ No			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)				
1.				
2.				
3.				
4.				
5.				
	= Total Cover			
Herb Stratum (Plot size: 15ft x 15ft)				
1. *Schoenoplectus maritimus*	30	Y	75.0	OBL
2. *Triglochin maritima*	10	Y	25.0	OBL
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	40 = Total Cover			
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	40 (A)		40 (B)

Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ◉ Yes ○ No

Remarks:

SOIL

Sampling Point: SP-A1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	4/1	60	5YR	5/8	40	C	M	Silt Loam	High organic content
4-16	10YR	2/1	70	10YR	5/1		D	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicble to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☑ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☑ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	◉ Yes	○ No	Depth (inches):	1
Water Table Present?	◉ Yes	○ No	Depth (inches):	4
Saturation Present? (includes capillary fringe)	◉ Yes	○ No	Depth (inches):	0

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Whitmarsh Landfill Wetland Delineation | City/County: Skagit | Sampling Date: 7/12/2021

Applicant/Owner: Wood PLC | State: WA | Sampling Point: SP-A2

Investigator(s): Adam Crispin | Section, Township, Range: S6, T34N, R02E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: 48.463758° | Long: -122.530635° | Datum: NAD83HARN

Soil Map Unit Name: Hydraquents, tidal | NWI Classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? ◉ Yes ○ No (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ◉ Yes ○ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	◉ Yes	○ No	**Is the Sampled Area within a Wetland?**	○ Yes	◉ No
Hydric Soil Present?	○ Yes	◉ No			
Wetland Hydrology Present?	○ Yes	◉ No			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft)				
1. *Rubus armeniacus*	15	**Y**	100.0	FAC
2.				
3.				
4.				
5.				
	15 = Total Cover			
Herb Stratum (Plot size: 15ft)				
1. *Conium maculatum*	20	**Y**	33.3	FAC
2. *Agrostis gigantea*	20	**Y**	33.3	FAC
3. *Chamaenerion angustifolium*	20	**Y**	33.3	FACU
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	60 = Total Cover			
Woody Vine Stratum (Plot size: 15ft)				
1. *Rubus armeniacus*	5	**Y**	100.0	FAC
2.				
	5 = Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	80 (A)		260 (B)

Prevalence Index = B/A = 3.250

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ◉ Yes ○ No

Remarks:

SOIL

Sampling Point: SP-A2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	100					Sand	Fill near railroad, with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicble to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Whitmarsh Landfill Wetland Delineation | City/County: Skagit | Sampling Date: 7/12/2021

Applicant/Owner: WSDOT | State: WA | Sampling Point: SP-B1

Investigator(s): Adam Crispin | Section, Township, Range: S6, T34N, R02E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A | Lat: 48.463758° | Long: -122.530635° | Datum: NAD83HARN

Soil Map Unit Name: Hydraquents, tidal | NWI Classification: E2EM1/USN

Are climatic / hydrologic conditions on the site typical for this time of year? ◉ Yes ○ No (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ◉ Yes ○ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	◉ Yes	○ No	**Is the Sampled Area within a Wetland?**	◉ Yes	○ No
Hydric Soil Present?	◉ Yes	○ No			
Wetland Hydrology Present?	◉ Yes	○ No			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft x 15ft)				
1. *Rubus spectabilis*	30	Y	54.5	FAC
2. *Rubus armeniacus*	25	Y	45.5	FAC
3.				
4.				
5.				
	55	= Total Cover		
Herb Stratum (Plot size: 15ft x 15ft)				
1. *Lysichiton americanus*	20	Y	36.4	OBL
2. *Phalaris arundinacea*	20	Y	36.4	FACW
3. *Ranunculus repens*	15	Y	27.3	FAC
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	55	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.				
2.				
	= Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	20	x 2 =	40
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		270 (B)

Prevalence Index = B/A = 2.455

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ◉ Yes ○ No

Remarks:

SOIL

Sampling Point: SP-B1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	3/1	100						Silt Loam	
10-16	10YR	4/2	85	7.5YR	5/8	15	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicble to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ◉ Yes ○ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ◉ Yes ○ No Depth (inches): 4

Water Table Present? ◉ Yes ○ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ◉ Yes ○ No Depth (inches): 0

Wetland Hydrology Present? ◉ Yes ○ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Whitmarsh Landfill Wetland Delineation | City/County: Skagit | Sampling Date: 7/12/2021

Applicant/Owner: Wood PLC | State: WA | Sampling Point: SP-B2

Investigator(s): Adam Crispin | Section, Township, Range: S6, T34N, R02E

Landform (hillslope, terrace, etc.): floodplain | Local relief (concave, convex, none): none | Slope (%): 0

Subregion (LRR): A | Lat: 48.463758° | Long: -122.530635° | Datum: NAD83HARN

Soil Map Unit Name: Hydraquents, tidal | NWI Classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? ◉ Yes ○ No (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? ◉ Yes ○ No

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	◉ Yes	○ No	**Is the Sampled Area within a Wetland?**	○ Yes	◉ No
Hydric Soil Present?	○ Yes	◉ No			
Wetland Hydrology Present?	○ Yes	◉ No			

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20 ft)	Absolute % Cover	Dom. Sp.?	Relative % Cover	Indicator Status
1.				
2.				
3.				
4.				
	= Total Cover			
Sapling/Shrub Stratum (Plot size: 15ft)				
1. *Rubus armeniacus*	80	**Y**	100.0	FAC
2.				
3.				
4.				
5.				
	80 = Total Cover			
Herb Stratum (Plot size: 15ft)				
1. *Schedonorus arundinaceus*	10	**Y**	66.7	FAC
2. *Ranunculus repens*	5	**Y**	33.3	FAC
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	15 = Total Cover			
Woody Vine Stratum (Plot size: 15ft)				
1. *Rubus armeniacus*	5	**Y**	100.0	FAC
2.				
	5 = Total Cover			

% Bare Ground in Herb Stratum

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.000

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? ◉ Yes ○ No

Remarks:
Marginal FAC plants present, however, the area is compsed of roadside fill and generally lacking in other wetland indicators.

SOIL

Sampling Point: SP-B2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	4/2	100					Sandy Loam	Fill near road, with gravel
8-16	10YR	3/3	100					Sandy Loam	Fill near road, with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicble to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? ○ Yes ◉ No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? ○ Yes ◉ No Depth (inches): _____

Water Table Present? ○ Yes ◉ No Depth (inches): _____

Saturation Present? (includes capillary fringe) ○ Yes ◉ No Depth (inches): _____

Wetland Hydrology Present? ○ Yes ◉ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D – Wetland Rating Forms

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Wetland name or number _____

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 7/12/21

Rated by Adam Crispin Trained by Ecology? __ Yes ___No Date of training_____

HGM Class used for rating Estuarine Wetland has multiple HGM classes? __X_Y __N

NOTE: **Form is not complete without the figures requested** *(figures can be combined)*.
Source of base aerial photo/map ArcGIS Online

OVERALL WETLAND CATEGORY __I___(based on functions___or special characteristics_X_)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	Circle the appropriate ratings									
Site Potential	H	M	L	H	M	L	H	M	L	
Landscape Potential	H	M	L	H	M	L	H	M	L	
Value	H	M	L	H	M	L	H	M	L	**TOTAL**
Score Based on Ratings										

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	**I II**
Wetland of High Conservation Value	**I**
Bog	**I**
Mature Forest	**I**
Old Growth Forest	**I**
Coastal Lagoon	**I II**
Interdunal	**I II III IV**
None of the above	

Wetland name or number _____

Maps and figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	
Hydroperiods	D 1.4, H 1.2	
Location of outlet (*can be added to map of hydroperiods)*	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	D 2.2, D 5.2	
Map of the contributing basin	D 4.3, D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream *(can be added to another figure)*	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland *(can be added to another figure)*	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above)*	S 4.1	
Boundary of 150 ft buffer (can be added to another figure)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

Wetland name or number _____

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   ___The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number _____

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

*If you are still unable to determine which of the above criteria apply to your wetland, or if you have **more than 2 HGM classes** within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number _____

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes **–** Go to **SC 2.2** No **–** Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes **= Category I** No **= Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes **– Contact WNHP/WDNR and go to SC 2.4** No **= Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes **= Category I** No **= Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No **= Is not a bog**	**Cat. I**

Wetland name or number _____

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	

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Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland Unit B Date of site visit: 7/12/2021

Rated by Adam Crispin Trained by Ecology? ☑ Yes ☐ No Date of training 9/13/2017

HGM Class used for rating Depressional & Flats Wetland has multiple HGM classes? ☐ Yes ☑ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map ArcGIS

OVERALL WETLAND CATEGORY II (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 23 - 27
X **Category II** - Total score = 20 - 22
_____ **Category III** - Total score = 16 - 19
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	M	M	M	
Landscape Potential	H	H	M	
Value	M	L	H	**Total**
Score Based on Ratings	7	6	7	**20**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Estuarine	
Wetland of High Conservation Value	
Bog	
Mature Forest	
Old Growth Forest	
Coastal Lagoon	
Interdunal	

None of the above	**X**

Wetland name or number B

Maps and Figures required to answer questions correctly for Western Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	2
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	3
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	4
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	5
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	6

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream (*can be added to another figure*)	R 4.1	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	L 1.1, L 4.1, H 1.1, H 1.4	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to another figure*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including	H 2.1, H 2.2, H 2.3	

polygons for accessible habitat and undisturbed habitat		
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

HGM Classification of Wetland in Western Washington

For questions 1 -7, the criteria described must apply to the entire unit being rated.
If hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1 - 7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

☑ NO - go to 2 ☐ **YES** - the wetland class is **Tidal Fringe** - go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

☐ **NO - Saltwater Tidal Fringe (Estuarine)** ☐ **YES - Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
- ☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☑ NO - go to 4 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The wetland is on a slope (*slope can be very gradual*),
- ☐ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
- ☐ The water leaves the wetland **without being impounded.**

☑ NO - go to 5 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
- ☐ The overbank flooding occurs at least once every 2 years.

☑ NO - go to 6 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding.

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

☐ NO - go to 7 ☑ **YES** - The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

☐ NO - go to 8 ☐ **YES** - The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

NOTES and FIELD OBSERVATIONS:
The open water of Ruggs Lake is less than 20 ac and was therefore rated as one Depressional wetland unit.

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 ☑ Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 ☐ Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1		1
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions*).	Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0		3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0		4
Total for D 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3? Source Contaminated soils	Yes = 1 No = 0	1
Total for D 2	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 or 4 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

Wetland name or number B

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?		
D 4.1. Characteristics of surface water outflows from the wetland:		2
Wetland is a depression or flat depression with no surface water leaving it (no outlet)	points = 4	
Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet	points = 2	
Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch	points = 1	
Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing	points = 0	
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.*		3
Marks of ponding are 3 ft or more above the surface or bottom of outlet	points = 7	
Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet	points = 5	
☐ Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet	points = 3	
☐ The wetland is a "headwater" wetland	points = 3	
Wetland is flat but has small depressions on the surface that trap water	points = 1	
Marks of ponding less than 0.5 ft (6 in)	points = 0	
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.*		3
☐ The area of the basin is less than 10 times the area of the unit	points = 5	
The area of the basin is 10 to 100 times the area of the unit	points = 3	
The area of the basin is more than 100 times the area of the unit	points = 0	
☐ Entire wetland is in the Flats class	points = 5	
Total for D 4	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic function of the site?		
D 5.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0	1
D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate excess runoff?	Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)?	Yes = 1 No = 0	1
Total for D 5	Add the points in the boxes above	**3**

Rating of Landscape Potential If score is: ☑ **3 = H** ☐ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?		
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.*		0
The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds):		
• Flooding occurs in a sub-basin that is immediately down-gradient of unit.	points = 2	
☑ • Surface flooding problems are in a sub-basin farther down-gradient.	points = 1	
☐ Flooding from groundwater is an issue in the sub-basin.	points = 1	
☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. Explain why	points = 0	
☐ There are no problems with flooding downstream of the wetland.	points = 0	

D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	**0**

Rating of Value If score is: ☐ **2 - 4 = H** ☐ **1 = M** ☑ **0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

- ☑ Aquatic bed
- ☑ Emergent
- ☑ Scrub-shrub (areas where shrubs have > 30% cover)
- ☑ Forested (areas where trees have > 30% cover)

4 structures or more: points = 4
3 structures: points = 2
2 structures: points - 1
1 structure: points = 0

If the unit has a Forested class, check if:

- ☐ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

- ☑ Permanently flooded or inundated
- ☑ Seasonally flooded or inundated
- ☐ Occasionally flooded or inundated
- ☑ Saturated only

4 or more types present: points = 3
3 types present: points = 2
2 types present: points = 1
1 types present: points = 0

- ☐ Permanently flowing stream or river in, or adjacent to, the wetland
- ☐ Seasonally flowing stream in, or adjacent to, the wetland
- ☐ **Lake Fringe wetland** **2 points**
- ☑ **Freshwater tidal wetland** **2 points**

3

H 1.3. Richness of plant species

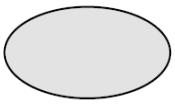
Count the number of plant species in the wetland that cover at least 10 ft^2.
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted:
- > 19 species — points = 2
- 5 - 19 species — points = 1
- < 5 species — points = 0

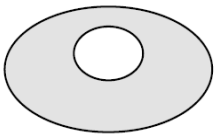
1

H 1.4. Interspersion of habitats

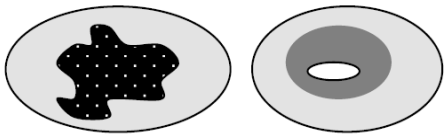
Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points



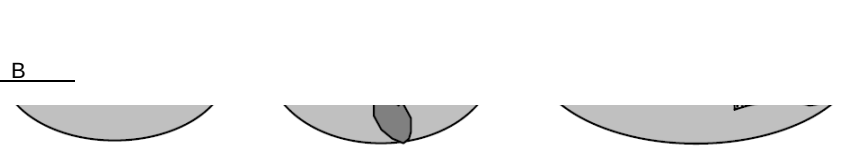
Low = 1 point



Moderate = 2 points

2

All three diagrams in this row are **HIGH** = 3 points



H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ☑ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long) ☐ Standing snags (dbh > 4 in) within the wetland ☐ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ☑ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*) ☑ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*) ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	3
Total for H 1 Add the points in the boxes above	**11**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☑ **7 - 14 = M** ☐ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat function of the site?	
H 2.1 Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* 4.8 % undisturbed habitat + (1.5 % moderate & low intensity land uses / 2) = 5.55% If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20 - 33% of 1 km Polygon points = 2 10 - 19% of 1 km Polygon points = 1 < 10 % of 1 km Polygon points = 0	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* 10.4 % undisturbed habitat + (44.9 % moderate & low intensity land uses / 2) = 32.85% Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10 - 50% and in 1-3 patches points = 2 Undisturbed habitat 10 - 50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	2
H 2.3 Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (-2) ≤ 50% of 1km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	**2**

Rating of Landscape Potential If Score is: ☐ **4 - 6 = H** ☑ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: points = 2 ☑ It has 3 or more priority habitats within 100 m (see next page) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) ☐ It is mapped as a location for an individual WDFW priority species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a	2

watershed plan		
Site has 1 or 2 priority habitats (listed on next page) with in 100m	points = 1	
Site does not meet any of the criteria above	points = 0	

Rating of Value If Score is: ☑ **2 = H** ☐ **1 = M** ☐ **0 = L** *Record the rating on the first page*

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Herbaceous Balds**: Variable size patches of grass and forbs on shallow soils over bedrock.
- ☐ **Old-growth/Mature forests**: Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- ☑ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Westside Prairies**: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- ☐ **Instream**: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- ☑ **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- ☐ **Caves**: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are >

12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine Wetlands Does the wetland meet the following criteria for Estuarine wetlands? ☐ The dominant water regime is tidal, ☐ Vegetated, and ☐ With a salinity greater than 0.5 ppt ☐ Yes - Go to **SC 1.1** ☑ No = **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? ☐ Yes = **Category I** ☐ No - Go to **SC 1.2**	
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? ☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina* , see page 25) ☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. ☐ The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. ☐ Yes = **Category I** ☐ No = **Category II**	
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☑ Yes - Go to **SC 2.2** ☐ No - Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 2.4** ☐ No = **Not WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☐ No = **Not WHCV**	
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions*** . SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? ☑ Yes - Go to **SC 3.3** ☐ No - Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? ☐ Yes - Go to **SC 3.3** ☐ No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? ☐ Yes = **Is a Category I bog** ☑ No - Go to **SC 3.4** **NOTE**: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir,	

western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy?

☐ Yes = **Is a Category I bog** ☑ No = **Is not a bog**

SC 4.0. Forested Wetlands

Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.***

☐ **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more.

☐ **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80-200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm).

☐ Yes = **Category I** ☑ No = **Not a forested wetland for this section**

SC 5.0. Wetlands in Coastal Lagoons

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

☐ The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

☐ The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon (*needs to be measured near the bottom*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a wetland in a coastal lagoon**

SC 5.1. Does the wetland meet all of the following three conditions?

☐ The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100).

☐ At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.

☐ The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2)

☐ Yes = **Category I** ☐ No = **Category II**

SC 6.0. Interdunal Wetlands

Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.***

In practical terms that means the following geographic areas:

☐ Long Beach Peninsula: Lands west of SR 103

☐ Grayland-Westport: Lands west of SR 105

☐ Ocean Shores-Copalis: Lands west of SR 115 and SR 109

☐ Yes - Go to **SC 6.1** ☑ No = **Not an interdunal wetland for rating**

SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)?

☐ Yes = **Category I** ☐ No - Go to **SC 6.2**

SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?

☐ Yes = **Category II** ☐ No - Go to **SC 6.3**

SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac?

☐ Yes = **Category III** ☐ No = **Category IV**

Category of wetland based on Special Characteristics

If you answered No for all types, enter "Not Applicable" on Summary Form

Whitmarsh Landfill

Remediation Project
Anacortes, WA

Wetland B Rating
Figure 1

NAD 1983 HARN State Plane Washington North FIPS 4601 (US Ft)

Map Created By: A. Crispin and K. Ritchie

hamer.

Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

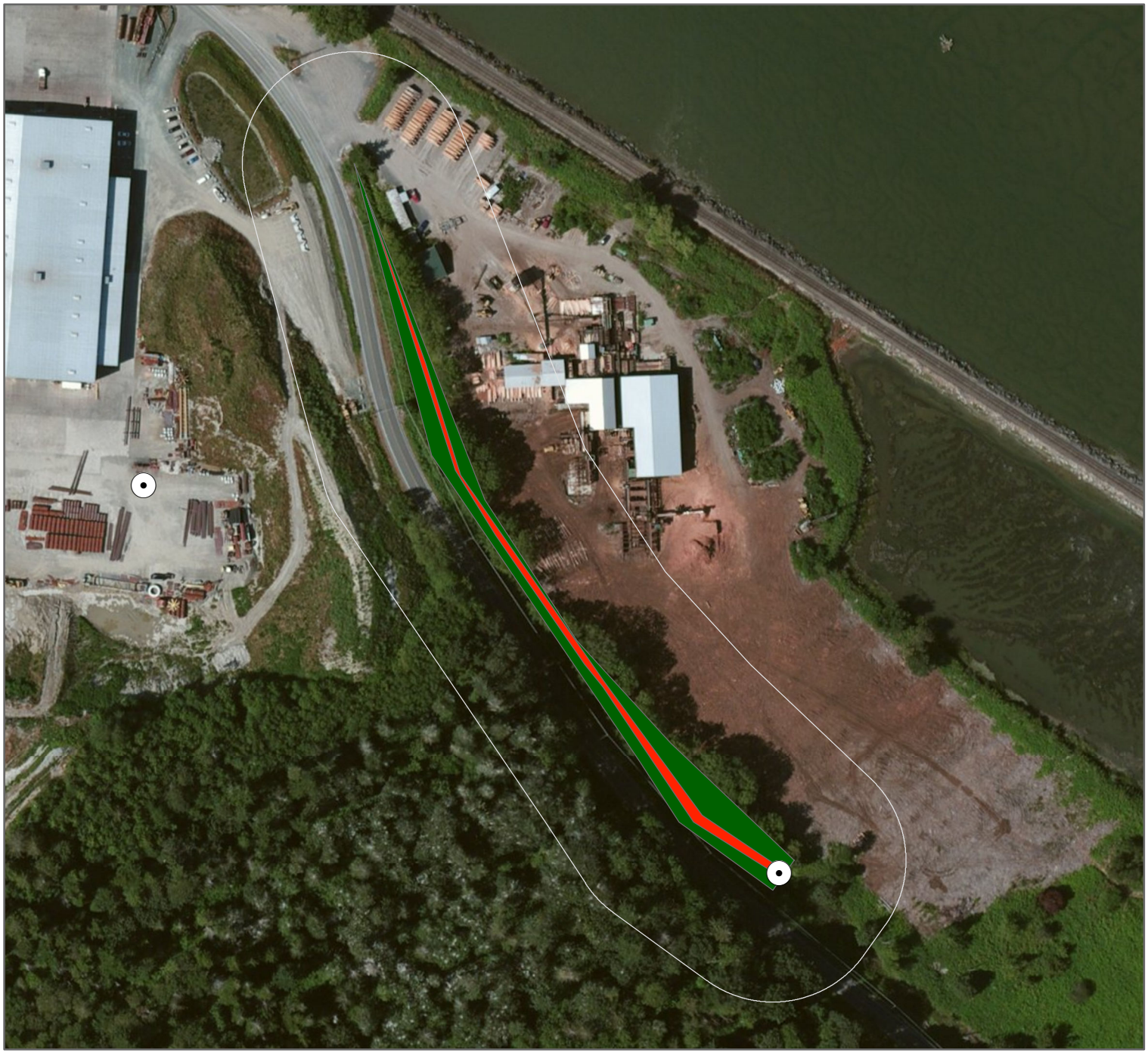
Whitmarsh Landfill

Remediation Project
Anacortes, WA

Wetland B Rating
Figure 2

NAD 1983 HARN State Plane Washington North FIPS 4601 (US Ft)

Map Created By: A. Crispin and K. Ritchie



Outlet

150-ft Buffer

Hydroperiods

Perm. Flood

Seas. Flood/Sat.

hamer.

Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

Whitmarsh Landfill

Remediation Project
Anacortes, WA

Wetland B Rating
Figure 3

NAD 1983 HARN State Plane Washington North FIPS 4601 (US Ft)

Map Created By: A. Crispin and K. Ritchie

Basin

Wetland B

hamer.

Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

Whitmarsh Landfill

Remediation Project
Anacortes, WA

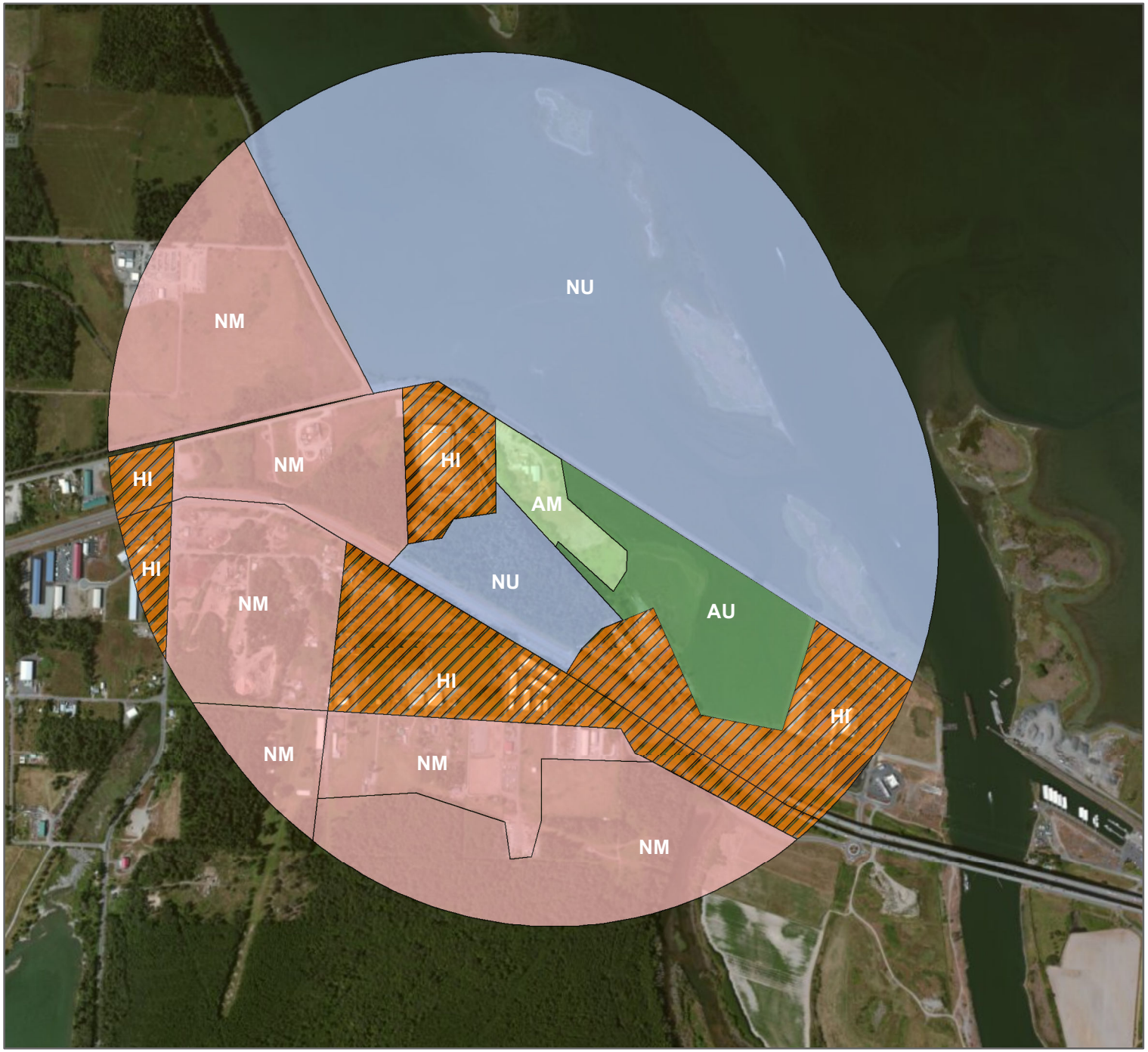
Wetland B Rating
Figure 4

NAD 1983 HARN State Plane
Washington North FIPS 4601 (US Ft)

Map Created By: A. Crispin and K. Ritchie

- Abutting Mod.
- Abutting Undist.
- High Intensity
- Non-abutt... Mod.
- Non-abutt... Undist.

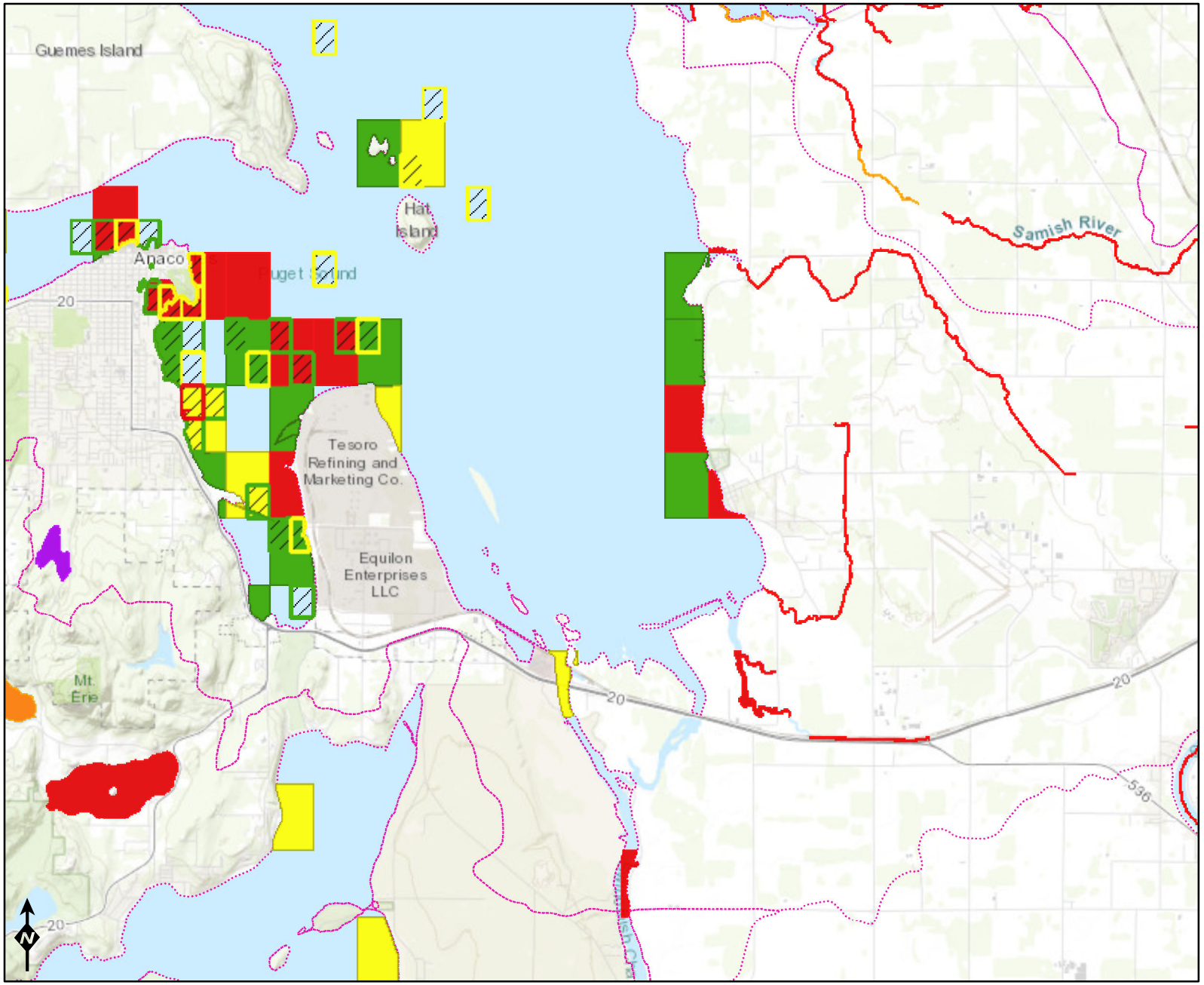
hamer.



Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

October 13, 2021

Figure 5



Assessed Water/Sediment

Water
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

Sediment
- Category 5 - 303d
- Category 4C
- Category 4B
- Category 4A
- Category 2
- Category 1

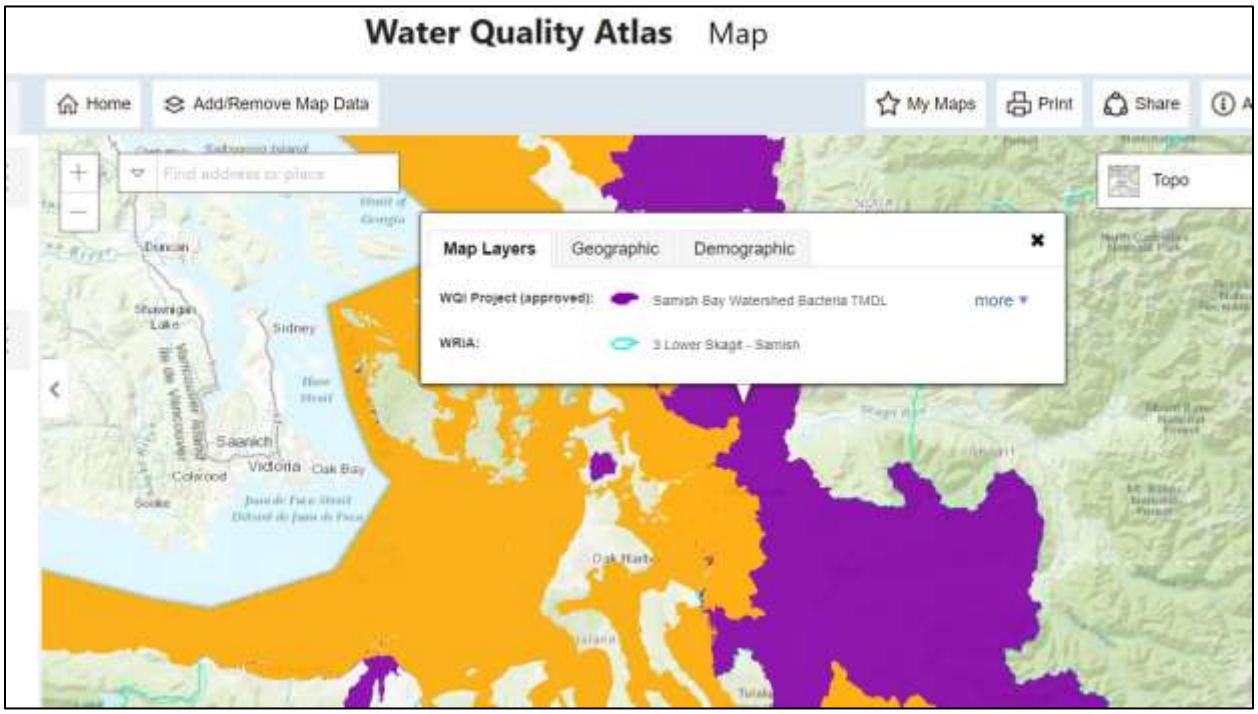
Subbasins (12 digit HUCs)
- HUC boundary

Miles
0 1 2 4

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and

DEPARTMENT OF ECOLOGY
State of Washington

Figure 6



Water quality improvement projects

Select the waterbody or pollutant name to find more information about the specific project.

Waterbody Name(s)	Pollutant(s)	Status	Project Lead(s)
Campbell Lake	Total Phosphorus	EPA approved	Tricia Shoblom 425-649-7288
Erie Lake	Total Phosphorus	EPA approved	Tricia Shoblom 425-649-7288
Padilla Bay	Fecal Coliform	Under development	Scott Bohling 425-649-4424
Samish Watershed	Fecal Coliform	EPA approved and Has an implementation plan	Scott Bohling 425-649-4424
Skagit Basin	Fecal Coliform	EPA approved and Has an implementation plan	Scott Bohling 425-649-4424
Skagit Basin	Temperature	EPA approved	Scott Bohling 425-649-4424
Stillaquamish River	Arsenic Dissolved Oxygen Fecal Coliform Mercury pH Temperature	EPA approved and Has an implementation plan	Ralph Svircek 425-649-7165

To request ADA accommodation, call Ecology at 360-407-7668, 711 (relay service), or 877-833-6341 (TTY). More about our accessibility services.

Appendix A. Maintenance plan

March Point Landfill Site
Skagit County, WA

Table of Contents

Figures

Appendices

2.0 Introduction

The March Point (aka Whitmarsh) Landfill Site (the Site) is one of the sites on Padilla Bay and the nearby Fidalgo Bay that is being investigated and cleaned up as part of the Puget Sound Initiative. The Site is located on the east side of March Point at 9663 South March Point Road in Anacortes, Washington (Figure 1). The Site is listed on the Washington State Department of Ecology (Ecology) Hazardous Sites List as Facility Site ID 2662.

A Remedial Investigation/Feasibility Study (RI/FS) was prepared by Amec Foster Wheeler (AMEC 2016) on behalf of the participating March Point (aka Whitmarsh) Landfill Potentially Liable Parties (PLP Group) that at this time consists of the Shell Oil Company, Skagit County, Texaco, Inc., and the Washington Department of Natural Resources.

The preferred alternative selected during the RI/FS and accepted by Ecology was Alternative 3, which consists of the following:

- Moving solid waste (35,000 cy) from the edges of the landfill inward, and grading the waste to a mound to make proper/required grading per the minimum functional standards of Washington Administrative Code 173-304.
- Installing a passive landfill gas (LFG) collection system, and placing an engineered cap over the landfill with standard geosynthetic clay laminated liner (GCLL).
- Installing a modified bentonite clay GCLL with polymer extending to the Bay Mud, and constructing a perimeter access road around the landfill. The engineered cap would minimize or eliminate infiltration of groundwater into the landfill, and the GCLL would minimize discharge of groundwater from the landfill to surface waters.
- Treatment of wastewater (1.3 million gallons) generated during construction work.
- Installation of an LFG collection system, which would vent LFG to the atmosphere, as well as groundwater collection/treatment as needed to prevent off-site migration.
- Installation of stormwater control measures.
- Institutional and engineering controls.
- Long-term monitoring of groundwater (quality and levels for hydraulic control purpose), seepage, LFG, and the landfill closure facility.
- Riparian vegetation plantings along the landfill shoreline.

2.0 Maintenance requirements

This document presents the maintenance requirements needed to ensure that the newly planted riparian vegetation at the project site becomes established. The proposed methods, minimum frequency, and duration of maintenance activities (including long-term maintenance) required for the following activities (watering, mulching, weeding, tree removal, dead shrub removal, and debris removal) are covered in this document.

The initial 3-year maintenance requirements have been developed to ensure that newly planted vegetation becomes established and is not out-competed by invasive species or destroyed by herbivores. This maintenance plan and its implementation is a key factor for establishment of the vegetation. The long-term maintenance component of the plan describes the maintenance activities that will be conducted after the initial 3-year maintenance period.

The maintenance plan is comprised of two sections:

- Initial routine maintenance during the 3-year maintenance period; and
- Long-term maintenance that will be conducted for the life of the project after the initial 3-year maintenance period. This includes maintaining vegetation and other habitat attributes, control of invasive vegetation, and undertaking actions to address perturbations with a foreseeable probability of occurrence (e.g., rail accidents, illegal dumping, etc.) excluding "force majeure" events.

2.1 Watering

Supplemental watering will likely be necessary for vegetation in the upland areas for a minimum of 2 years post-construction or until the installed plants develop an adequate root structure. The initial planting for the habitat projects will be conducted in the fall. Plants will need to be watered following installation until rainfall amounts (1 inch weekly total) are sufficient to meet the requirements of the individual plants or until the plants enter dormancy.

Plantings will be inspected weekly until they have entered dormancy or until rainfall amounts consistently reach 1 inch weekly total. During the spring, summer, and fall growing seasons soil moisture monitoring and best professional judgment will be used to determine if supplemental watering is required. Transplanted shrubs and herbaceous ground cover may require up to 1 inch of water (or more) each week during the summer months. Individual woody plants may need 10-gallons-per-inch of stem diameter to meet water requirements. Plants will be watered deeply, slowly, and thoroughly with limited surface water runoff. Watering will occur early in the morning, at night, or in the evening to limit evaporation. Nursery soil transplanted with potted or containerized plants may have different moisture retention characteristics than the surrounding soils.

Watering the surrounding soil is needed to encourage root growth into the surrounding soil. Once supplemental watering is started for the growing season, the watering system will need to be monitored to ensure it is operating correctly and effectively. Depending on the temperature and cumulative rainfall amounts between April and October, soil moisture monitoring and best professional judgment will be needed to determine if supplemental watering is required.

2.2 Mulching

Mulching will occur during initial plant installation to help retain soil moisture by reducing evaporation and erosion, and to provide nutrients to the plants. Supplemental mulching may

occur during weeding activities, as necessary. Mulch should be aged plant material comprised of coarse-ground wood byproducts or chips ranging in size from 0.50 inch to 6 inches along the longest dimension. Mulch is typically obtained from mechanical grinding or shredding of harvested trees or portions of trees. Mulch may contain ground or shredded bark fines. Fines content of the mulch should not be greater than 20%.

The mulch may contain a mix of hardwood and softwood species such as hemlock and Douglas fir species. The mulch material should be free of weeds, weed seeds, deleterious materials, resins, tannins, and other materials that are detrimental to plant survival or vigor. Mulch containing bark material or chips from cedar trees is unacceptable.

2.3 Weeding

Weeding around upland riparian shrubs will be important during the summer of the first year to ensure establishment and prevent stress to the plants from competition for resources. The frequency will be determined using best professional judgment; however, weeding will be scheduled to occur at least twice during the spring (ideally May and June), and then once more during the summer months (either August or September). A list of common weed species is provided in the Skagit County Noxious Weed List (Skagit County 2016). If any of the Class "A" Weeds found on the Skagit County Noxious Weed List (see Appendix A) is found colonizing any portion of the site, it will be immediately controlled as required by law. If the invasive plant Spartina spp. (a Class "A" Weed) is found colonizing any portion of the adjacent marsh, it will be controlled consistent with the Swinomish Spartina Control Program. If the invasive Scotch broom (Cytisus scoparius; Class "B" Weed) or the Himalayan blackberry (Rubus armeniacus; Class "C" Weed) is found colonizing any portion of the site, it will be controlled.

A majority of the weeding will be performed using simple hand tools (e.g., rakes, hoes). Chemical treatment (herbicides) will be considered only if physical removal fails. Chemical treatments will only be applied after consultation and coordination with the appropriate local jurisdictions.

2.4 Tree removal

Trees with deep root systems pose a potential threat to the integrity of the GCLL engineered cap and will not be planted or allowed to propagate. Additionally, large trees with shallow, but broad root systems (greater than 6 feet in diameter) also pose a threat to the engineered cap if they blow over. Volunteer tree species that recruit to the site will be thinned as needed to prevent establishment.

2.5 Dead shrub removal

Dead shrubs will only be removed after an accurate assessment of the shrub planting success has been made. Replacement planting may be conducted after submittal of a maintenance report documenting shrub mortality of 30% or greater. If wide-scale replanting is proposed, species

recommendations to maintain the desired diversity in the plant communities will be provided to the PLPs and Ecology. Replanting will be conducted in consultation with Ecology.

2.6 Debris removal

Anthropogenic material that potentially impairs habitat functions will be removed from the perimeter of the site on an as-needed basis. Small material will be removed by hand when practical.

2.7 Long-term maintenance

Long-term maintenance will be conducted after the initial 3-year period to ensure that habitat functions of the project are maintained. This includes maintaining vegetation and other habitat attributes, control of invasive vegetation, control and removal of trees, and undertaking actions to address perturbations with a foreseeable probability of occurrence (e.g., rail accidents, illegal dumping, etc.) excluding "force majeure" events. These activities will be conducted on an as-needed basis by facility maintenance or landscaping crews. Facility maintenance or landscaping crews will be instructed in recognizing and dealing with invasive species. Surveys for invasive species should occur in the spring and in late summer. Visual surveys and cleanup of anthropogenic debris should occur a minimum of once per year. Large woody debris that recruits to the sites should be evaluated for stability and scour potential. Unstable logs should be anchored (if needed) to prevent damage to marsh vegetation.

This maintenance plan will not cover "force majeure" events. "Force majeure" in the context of this discussion includes all physical events (e.g., flood flows or seismic events) that exceed the design criteria (developed using accepted professional engineering standards) for the project.

3.0 Maintenance reports

An ecologist will prepare a yearly monitoring reports for submittal to the PLPs and Ecology, which will include a description of maintenance activities that were conducted. After the initial 3-year maintenance period the ongoing long-term maintenance activities and invasive species surveys will be conducted coincident with the landfill maintenance activities (i.e., mowing). If the estimated survival of the planted shrubs drops to 70% of the initial planted density, then a list of recommended replacement shrubs and proposed quantities will be prepared and provided to the PLPs.

4.0 References

AMEC Environment & Infrastructure, Inc. (AMEC). 2016. Remedial Investigation/Feasibility Study Report, March Point (Whitmarsh) Landfill, Skagit County, Washington. Prepared for Whitmarsh Landfill PLP Group, Mount Vernon, Washington, by AMEC, Seattle, Washington.

Skagit County Noxious Weed Control Board (Skagit County). 2016. Skagit County Noxious Weed List. Skagit County Noxious Weed Control Board, Mount Vernon, Washington, http:// www.skagitcounty.net/Departments/NoxiousWeeds/weedlist.htm (accessed August 24, 2016).

Maintenance Plan Figures

N

0 1,000 2,000

APPROXIMATE SCALE IN FEET

SITE VICINITY
March Point (Whitmarsh) Landfill
Skagit County, Washington

By: APS	Date: 06/15/18	Project No. 14159
Amec Foster Wheeler Environment & Infrastructure, Inc.		Figure 1

Plot Date: 06/15/18 - 4:10pm, Plotted by: adam.stenberg
Drawing Path: C:\Users\adam.stenberg\appdata\local\tempAcPublish_4888\, Drawing Name: Whitmarsh_VicinityMap_010918.dwg

PADILLA BAY

BNSF RAILROAD

EXTENT OF SOLID WASTE

PADILLA BAY
INNER LAGOON

EXISTING OHWM (EL. 9.24')

POSSIBLE RIPARIAN ZONE

ACCESS ROAD
(15' WIDE)

S MARCH POINT ROAD

EXTENT OF SOLID WASTE

Aerial Photo Courtesy of Google Earth
(May, 2015)

EXPLANATION

RIPARIAN ZONE

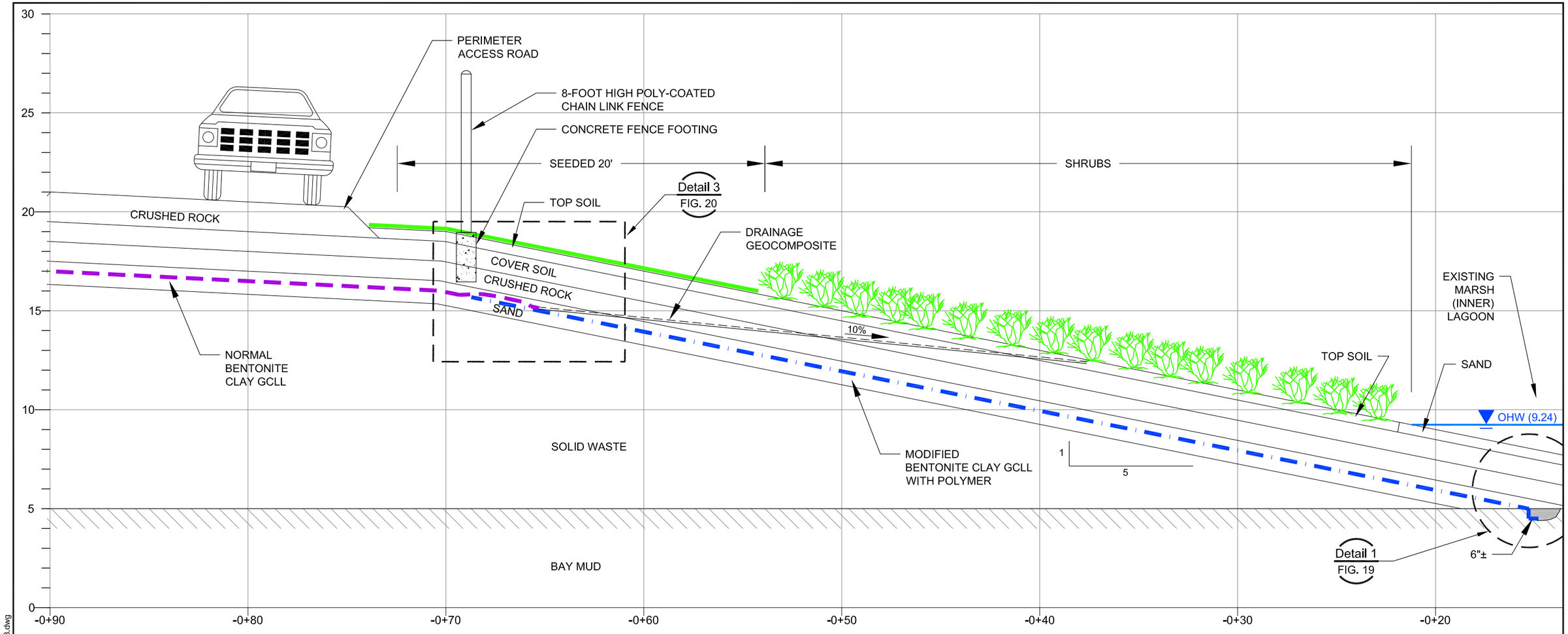
ELEVATION CONTOUR IN FEET ABOVE
MEAN LOWER LOW WATER

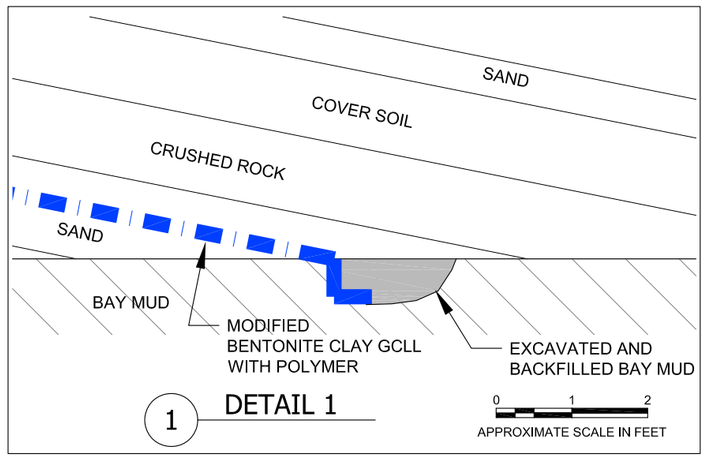
0 60 120
APPROXIMATE SCALE IN FEET

VEGETATION PLAN VIEW
March Point (Whitmarsh) Landfill
Skagit County, Washington

By: APS	Date: 01/09/18	Project No. 14159
Amec Foster Wheeler Environment & Infrastructure, Inc.		Figure 2

Plot Date: 01/09/18 - 4:53pm Plotted by: adam.stenberg
Drawing Path: C:\Users\adam.stenberg\appdata\local\temp\AcPublish_4840\ Drawing Name: Whitmarsh-MarchPoint_Design_090916.dwg





SHORELINE CROSS SECTION
March Point (Whitmarsh) Landfill
Skagit County, Washington

By: APS	Date: 06/15/18	Project No. 14159
Amec Foster Wheeler Environment & Infrastructure, Inc.		Figure 3

Plot Date: 06/15/18 - 3:32pm, Plotted by: adam.stenberg
Drawing Path: S:\14159\017_2016-Design\, Drawing Name: Whitmarsh-MarchPoint_Design_010918.dwg

Maintentance Plan Appendix A. Skagit county noxious weed list

Class A Weeds where control is required

common crupina	Crupina vulgaris
cordgrass, common	Spartina anglica
cordgrass, dense-flowered	Spartina densiflora
cordgrass, saltmeadow	Spartina patens
cordgrass, smooth	Spartina alterniflora
dyer's woad	Isatis tinctoria
eggleaf spurge	Euphorbia oblongata
false brome	Brachypodium sylvaticum
floating primrose-willow	Ludwigia peploides
flowering rush	Butomus umbellatus
French broom	Genista monspessulana
garlic mustard	Alliaria petiolata
giant hogweed	Heracleum mantegazzianum
goatsrue	Galega officinalis
hydrilla	Hydrilla verticillata
Johnsongrass	Sorghum halepense
knapweed, bighead	Centaurea macrocephala
knapweed, Vochin	Centaurea nigrescens
kudzu	Pueraria montana var. lobata
meadow clary	Salvia pratensis
oriental clematis	Clematis orientalis
purple starthistle	Centaurea calcitrapa
reed sweetgrass	Glyceria maxima
ricefield bulrush	Schoenoplectus mucronatus
sage, clary	Salvia sclarea
sage, Mediterranean	Salvia aethiopis
silverleaf nightshade	Solanum elaeagnifolium
small-flowered jewelweed	Impatiens parviflora
Spanish broom	Spartium junceum
Syrian beancaper	Zygophyllum fabago
Texas blueweed	Helianthus ciliaris
thistle, Italian	Carduus pycnocephalus
thistle, milk	Silybum marianum
thistle, slenderflower	Carduus tenuiflorus
variable-leaf milfoil	Myriophyllum heterophyllum
wild four-o'clock	Mirabilis nyctaginea

Class B Weeds where control is not required

butterfly bush	Buddleja davidii
common fennel (except bulbing fennel)	Foeniculum vulgare (except F. vulgare var. azoricum)
Eurasian watermilfoil	Myriophyllum spicatum
Hawkweeds (All nonnative species and hybrids of the wall subgenus)	Hieracium, subgenus Hieracium
herb-Robert	Geranium robertianum
knotweed, Bohemian	Polygonum x bohemicum
lesser celandine	Ficaria verna
loosestrife, purple	Lythrum salicaria
loosestrife, wand	Lythrum virgatum
Ravenna grass	Saccharum ravennae
Spurge flax	Thymelaea passerina

Class B-Designated Weeds where control is required

blueweed	Echium vulgare
Brazilian elodea	Egeria densa
bugloss, annual	Anchusa arvensis
bugloss, common	Anchusa officinalis
camelthorn	Alhagi maurorum
common reed (nonnative genotypes only)	Phragmites australis
Dalmatian toadflax	Linaria dalmatica ssp. dalmatica
European coltsfoot	Tussilago farfara
fanwort	Cabomba caroliniana
gorse	Ulex europaeus
grass-leaved arrowhead	Sagittaria graminea
hairy willowherb	Epilobium hirsutum
hawkweed oxtongue	Picris hieracioides
hawkweed, orange	Hieracium aurantiacum
hawkweeds (All nonnative species and hybrids of the meadow subgenus)	Hieracium, subgenus Pilosella
hoary alyssum	Berteroa incana
houndstongue	Cynoglossum officinale
indigobush	Amorpha fruticosa
knapweed, black	Centaurea nigra
knapweed, brown	Centaurea jacea
knapweed, diffuse	Centaurea diffusa
knapweed, meadow	Centaurea x moncktonii
knapweed, Russian	Acroptilon repens
knapweed, spotted	Centaurea stoebe

knotweed, giant	Polygonum sachalinense
knotweed, Himalayan	Polygonum polystachyum
kochia	Kochia scoparia
loosestrife, garden	Lysimachia vulgaris
Malta starthistle	Centaurea melitensis
parrotfeather	Myriophyllum aquaticum
policeman's helmet	Impatiens glandulifera
puncturevine	Tribulus terrestris
rush skeletonweed	Chondrilla juncea
saltcedar	Tamarix ramosissima
shiny geranium	Geranium lucidum
spurge laurel	Daphne laureola
spurge, leafy	Euphorbia esula
spurge, myrtle	Euphorbia myrsinites
sulfur cinquefoil	Potentilla recta
thistle, musk	Carduus nutans
thistle, plumeless	Carduus acanthoides
thistle, Scotch	Onopordum acanthium
velvetleaf	Abutilon theophrasti
water primrose	Ludwigia hexapetala
white bryony	Bryonia alba
wild chervil	Anthriscus sylvestris
yellow archangel	Lamiastrum galeobdolon
yellow floatingheart	Nymphoides peltata
yellow starthistle	Centaurea solstitialis

Class B Weeds selected for control by The Skagit County Noxious Weed Control Board

knotweed, Japanese	Polygonum cuspidatum
poison hemlock	Conium maculatum
Scotch broom	Cytisus scoparius
tansy ragwort	Senecio jacobaea
yellow nutsedge	Cyperus esculentus

Class C Weeds selected for control by The Skagit County Noxious Weed Control Board

common tansy	Tanacetum vulgare
common teasel	Dipsacus fullonum
field bindweed	Convolvulus arvensis
thistle, bull	Cirsium vulgare
thistle, Canada	Cirsium arvense
wild carrot	Daucus carota

(except where commercially grown)

Class C Weeds where control is not required

absinth wormwood	Artemisia absinthium
Austrian fieldcress	Rorippa austriaca
babysbreath	Gypsophila paniculata
black henbane	Hyoscyamus niger
blackgrass	Alopecurus myosuroides
buffalobur	Solanum rostratum
cereal rye	Secale cereale
common barberry	Berberis vulgaris
common catsear	Hypochaeris radicata
common groundsel	Senecio vulgaris
common St. Johnswort	Hypericum perforatum
curlyleaf pondweed	Potamogeton crispus
English hawthorn	Crataegus monogyna
English ivy	Hedera helix 'Baltica', 'Pittsburgh', and 'Star'; H. hibernica 'Hibernica' four cultivars only
Eurasian waterfilfoil hybrid	Myriophyllum spicatum x M. sibiricum
evergreen blackberry	Rubus laciniatus
fragrant waterlily	Nymphaea odorata
hairy whitetop	Lepidium appelianum
Himalayan blackberry	Rubus armeniacus
hoary cress	Lepidium draba
Italian arum	Arum italicum
Japanese eelgrass	Zostera japonica
jointed goatgrass	Aegilops cylindrica
jubata grass	Cortaderia jubata
lawnweed	Soliva sessilis
longspine sandbur	Cenchrus longispinus
nonnative cattail species and hybrids	Typha spp.
old man's beard	Clematis vitalba
oxeye daisy	Leucanthemum vulgare
pampas grass	Cortaderia selloana
perennial sowthistle	Sonchus arvensis ssp. arvensis
reed canarygrass	Phalaris arundinacea
Russian olive	Elaeagnus angustifolia
scentless mayweed	Matricaria perforata
smoothseed alfalfa dodder	Cuscuta approximata
spikeweed	Centromadia pungens.
spiny cocklebur	Xanthium spinosum
spotted jewelweed	Impatiens capensis
Swainsonpea	Sphaerophysa salsula

tree-of-heaven	Ailanthus altissima
ventenata	Ventenata dubia
white cockle	Silene latifolia ssp. alba
yellowflag iris	Iris pseudacorus
yellow toadflax	Linaria vulgaris

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

STATE ENVIRONMENTAL POLICY ACT
MITIGATED DETERMINATION OF NONSIGNIFICANCE

Date of Issuance: February 27, 2020

Lead agency: Department of Ecology, Toxics Cleanup Program

Agency Contact:

Arianne Fernandez
Cleanup Site Manager
Toxics Cleanup Program
PO Box 47600
Olympia, WA 98504-7600
(360) 407-7209
Email: arianne.fernandez@ecy.wa.gov

Description of proposal:

The proposed final cleanup action will be conducted for the March Point Landfill Site (Site; FS ID 2662) under a Consent Decree (CD) between the Washington State Department of Ecology (Ecology), Shell Oil Company, Texaco Inc., and Skagit County. The proposed project site encompasses approximately 15 acres of uplands property where ownership is described as follows:

- The properties found at Skagit County Parcel Numbers P19713 and P19676 are owned by Snow Mountain Land Company, LLC; the State of Washington owns the aquatic lands waterward of the 1890 meander line (est.) abutting P19713 and P1967 to the railroad right-of-way.
- The Charles Moon Credit Trust and the Estate of the late M. Ellen Moon, Trustee, own the property found at Skagit County Parcel Number P19684.
- Per Skagit County Assessors records, the late Ralph Hillestead owns the property found at Skagit County Parcel Number P19761.

The proposed final cleanup action includes environmental cleanup of the Site area as described below.

Landfill removal, re-grading and containment of solid waste: The Site (former Whitmarsh Landfill) was an unregulated public dump in the 1950s, and was operated by Skagit County as a landfill from 1961 until its closure in 1973. The Site slopes down to tidelands on the northeast and east sides and to drainage channels along the north and south sides. The tidelands on the northeast and east sides consist of the inner lagoon and outer lagoon, with an estuarine stream running along the eastern boundary continuing out toward Padilla Bay.

Data collected during the remedial investigation showed low levels of contamination discharging from the landfill to Padilla Bay. The selected remedial alternative involves removing some solid waste from the right-of-way, regrading some solid waste on site, and covering the landfill with a low-permeability liner and cover materials. Grading will ensure stormwater runs off the landfill while the cover materials protect the low-permeability liner. The liner will prevent infiltration of water and discharge of groundwater and leachate contained beneath the landfill.

Additional project activities include:

- Demolition of the existing structures on site (remaining structures from former saw mill facility).
- Re-constructing and enhancing the perimeter drainage swale system.
- Installation of a landfill gas passive venting system.
- Installation of eight monitoring wells.
- Vegetating the shoreline to create a new habitat with irrigation system, hydroseeding the remainder of the site, maintaining vegetation through a maintenance plan, and installing perimeter security fencing.

The Draft Cleanup Action Plan provides more information about the selected remedial alternative. A complete description of the project is provided in the State Environmental Policy Act (SEPA) Environmental Checklist for the Site.

Location of proposal: The proposed project site is located just east of March Point Road, North of Whitmarsh Junction, near the eastern boundary of the City of Anacortes generally at 9663 South March Point Road.

Applicant/Proponent:

Former Whitmarsh Landfill Potentially Liable Parties (PLP) Group
Ms. Margo Gillaspy, LHg.
Solid Waste Division Manager
Skagit County Public Works
1800 Continental Place
Mount Vernon, WA 98273-5625
(360) 416-1400 (office)
(360) 416-1661 (direct line)
margog@co.skagit.wa.us

Ecology has determined that this proposal will not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). We have reviewed the attached Environmental Checklist, draft Cleanup Action Plan, and draft Consent Decree. These are available at:
https://apps.ecology.wa.gov/gsp/Sitepage.aspx?csid=304

This determination is based on the following findings and conclusions:

The regrading and capping will limit and/or eliminate the potential pathway for contaminated groundwater and leachate to reach Padilla Bay. Contaminated media created during construction will be properly contained on site or properly managed and disposed off site. Construction design and best management practices outlined in the cleanup action plan will prevent contamination reaching Padilla Bay. It also prevents potential damage to adjacent marine habitat by operating during the lowest tides of the year.

The potential impact to Great Blue Heron and their adjacent rookery will be mitigated through application of local City of Anacortes ordinance protections. This includes a plan with best management practices designed to minimize impacts such as excessive noise during construction activities. The plan will be completed under consultation with the City of Anacortes and other relevant parties.

The comment period for this DNS corresponds with the comment period on the March Point Landfill Site DRAFT Cleanup Action Plan and DRAFT Consent Decrees and will end on April 8, 2020 to correspond with the comment period on the March Point Landfill Site DRAFT Cleanup Action Plan and DRAFT Consent Decrees.

Responsible official:

Barry Rogowski
Section Manager
Department of Ecology
PO Box #47600
Olympia, WA 98504-7600
(360) 407-7226

Signature Barry Rogowski Date 3/3/2020

February 20, 2009
8-915-16558-0

AMEC E&E Geomatrix
One Union Square, Suite 1020
600 University Street
Seattle, Washington 98101-4107

Attention: Dave Haddock

Subject: Archaeological Monitoring of RIFS Sampling in the Whitmarsh Landfill, Skagit County, Washington

Dear Dave:

AMEC-Geomatrix conducted subsurface investigations for an Uplands Remedial Investigation/Feasibility Study (RIFS) at the March Point (Whitmarsh) Landfill in Anacortes, Washington, between October 29 and November 2, 2008. In a letter to you dated October 16, 2008, I reviewed the potential for RIFS activities to affect archaeological resources that might underlie or exist at the surface adjacent to the project area. I stated my finding as follows:

"It is my professional opinion that there is a low potential for archaeological resources in the tide flat beneath the waste deposits. Although that is the case, I advise that a qualified archaeologist should be present during the test pitting to ensure that no unanticipated effects occur to archaeological resources. The observations of the monitoring archaeologist will also serve as an archaeological survey of the landfill area itself."

AMEC-Geomatrix followed that recommendation. Emily Gantz from the Bothell office of AMEC Earth & Environmental, Inc. monitored the excavations at the landfill site at all times and kept a daily record of her monitoring activities and observations (Attachment A). Her observations are summarized below.

Monitoring Observations.

Eleven test pits, numbered G-1 through G-11, were opened using an excavator. Each pit was excavated into native tide flat sediments or to the water table, whichever was encountered first. All pits contained an upper deposit of soil mixed with residential and industrial waste (Attachment B, Photos 1 and 2). Nine of the eleven pits reached groundwater before encountering native tide-flat sediments. Only pits G-7 and G-11 encountered native sediments. Native sediments were encountered at 8 to 10 feet (ft) below ground surface in G-7 (Photo 2)

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and in G-11 at approximately 8 ft. Sediments consisted of a poorly sorted mix of gravel, sand, and mud reduced to a gray color. No shells or archaeological material of any kind was observed in either of the pits.

Conclusion and Recommendations

Results of archaeological monitoring show that no archaeological resources were affected by RIFS activities at the Whitmarsh Landfill. Because the RIFS excavations reached native sediments at only two points, however, these results cannot be considered to be a full archaeological survey of the underlying landform. They provide no information about the land adjacent to the tide flat, which has a much higher potential for archaeological resources. Therefore, I recommend that to alleviate the concerns of the Suquamish and Swinomish tribes about possible archaeological impacts of later remediation efforts, two actions should be taken.

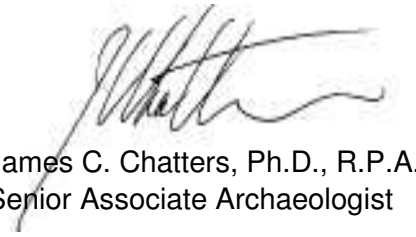
- An archaeological survey should be conducted along the historic western shoreline of Padilla Bay at the edge of the landfill deposit to identify and document any sites that might be affected by remediation activities. Cost of this activity would be approximately $7,500.
- AMEC-Geomatrix should consider including an archaeological monitor during at least the initial stages of any remediation that entailed removal of landfill material to the contact with natural tide flats. This monitoring would be intended to complete the equivalent of archaeological survey under the landfill deposits and establish with confidence that no archaeological resources are being affected by excavation of contaminated materials. Costs would be dependent on the scale and duration of excavation activities.

If these actions are taken, it is my professional opinion that no significant cultural resources will be affected by remediation activities.

Please feel free to contact me if you have any additional questions.

Sincerely,

AMEC Earth & Environmental, Inc.



James C. Chatters, Ph.D., R.P.A.
Senior Associate Archaeologist

Attachments: Attachment A – Archaeological Monitoring Logs
Attachment B – Photographs

ATTACHMENT A

Archaeological Monitoring Logs

ARCHAEOLOGICAL MONITORING LOG

Date 10/29/08 Monitor's Name/Initials: Emily Scott

Work area # WHITE MARSH (note location of today's monitoring areas on the attached site map)

Description of abatement/demolition work being done
(also note time of day, weather conditions, work performed by construction crew)

Met Nik Bacher (AMEC Geomatrix) at the site a little before 1pm. Went over site access and safety with PSC personnel (?) or PCS).
Completed a walk over of the test pit locations and measured test pits based from GPS points previously taken.

Total hours: 5.5 hrs (including drive time)

Photographic Documentation: roll # DIGITAL

Description of sediments and cultural resources (if any)

Surface sediments included a wide area of woody debris (near test pit locations G-6, G-8, G-9, and G-10). Surface sediments of The other test pit locations consisted of obviously disturbed sediments, fill, and lots of surface garbage.

Other notes (continue on back, if necessary)

Completed a visual survey of the site boundary nearest Padilla Bay Lagoon: no cultural materials noticed (besides modern garbage). The project area is located on a manmade rise over a tidal flat.

Pictures of the project area were taken.

Met with the Project Health & Safety Officer, Tim Reinhardt, and learned about the Ludlum Radiation gauge.

ARCHAEOLOGICAL MONITORING LOG

Date 10/30/08 Monitor's Name/Initials: Emily Scott

Work area # Whitman (note location of today's monitoring areas on the attached site map)
G-2, G-7

Description of abatement/demolition work being done
(also note time of day, weather conditions, work performed by construction crew)

Met the project crew at a little before 8am. Went over safety procedures and policies. Planned to begin test pit excavation as soon as equipment was ready. Delay with the water truck.

Total hours: 9.5 hrs

Photographic Documentation: roll # DIGITAL

Description of sediments and cultural resources (if any)

@ G-7: Top sediment was a dark brown silty loam w/ ≈30% gravels and modern trash underlaid by the land fill deposits with native sediments at ≈ 8ft bgs → 10 ft bgs. No cultural materials of significance observed.
@ G-2: Had a similar sedimentology (all fill) until water level prior to native sediments. No cultural materials of significance were observed.

Other notes (continue on back, if necessary)

No cultural materials of significance were observed during the monitoring of G-7 and G-2.

ARCHAEOLOGICAL MONITORING LOG

Date 10/31/08 Monitor's Name/Initials: Emily Scott

Work area # Ulupwash (note location of today's monitoring areas on the attached site map)
G-4, G11, G-3

Description of abatement/demolition work being done
(also note time of day, weather conditions, work performed by construction crew)

met project crew prior to 8am for safety meeting. Continuation of test pit excavation and shell sampling.

TOTAL HOURS: 9 hrs

Photographic Documentation: roll # DIGITAL

Description of sediments and cultural resources (if any)

@ G-4: Top sediment consisted of dark brown fill w/ some modern trash over land fill deposits. Regained maximum required depth of test pit. No significant cultural materials observed.
@ G-11: Had similar sediment deposits as previous test pit, with the native tidal flat visible at maximum depth. No significant cultural materials observed.
@ G-3: Sediments same as G-4, with test pit excavation terminated at water level. No significant cultural materials observed.

Other notes (continue on back, if necessary)

No cultural materials of significance were observed during the monitoring of G-4, G11, and G-3.
Sediments over the native tidal flat consist of fill materials.

ARCHAEOLOGICAL MONITORING LOG

Date 1/1/08 Monitor's Name/Initials: Emily Scott

Work area # Uplands (note location of today's monitoring areas on the attached site map)

G-1, G-6, G-10

Description of abatement/demolition work being done
(also note time of day, weather conditions, work performed by construction crew)

Met project crew prior to 8am for safety meeting.
Continuing of test pit excavation.

Total Hours: 10 hrs

Photographic Documentation: roll # DIGITAL

Description of sediments and cultural resources (if any)

@ G-1: Top sediments consisted of med brown to dark brown fill sediment unaerlaid by land fill materials. Excavation ended at required depth. No significant cultural materials observed.
@ G-6: Top sediments consisted of med. brown to dark brown fill sediments underlain by landfill deposits. Excavation halted at water lere). No significant cultural materials observed.
@ G-10: Top sediments consisted of med. med to dark brown fill Sediments underlaid by land fill deposits. Excavation ended at required depth. Drums were observed, but no cultural materials.

Other notes (continue on back, if necessary)

No significant cultural materials were observed during the shovelling of G-1, G-6 and G-10.
Sediments other than the native tidal flat consists of fill materials.

ARCHAEOLOGICAL MONITORING LOG

Date 11/2/08 **Monitor's Name/Initials:** Emily Scott

Work area # Whitmarsh (note location of today's monitoring areas on the attached site map)

G·5, G·8, G·9

Description of abatement/demolition work being done
(also note time of day, weather conditions, work performed by construction crew)

Met project crew prior to 7am for safety meeting.
Continuing of test pit excavations.

Photographic Documentation: roll # DIGITAL

Description of sediments and cultural resources (if any)

@ G·5: Top sediments consisted of grass debris, then med·brown to dark brown fill underlain by tidal fill deposits. Excavation ended at water level. No significant cultural resources were observed.
@ G-8: " same as G-5 "

@ G-9: "same as G·5 and G·8"
encountered a smashed drum.

Other notes (continue on back, if necessary)

No significant cultural materials were observed during the monitoring of G-9, G-8 and G·5.

Sediments other than the native tidal flat consisted of fill materials

ATTACHMENT B

Photographs

Photo 1. An example of landfill deposits excavated at Whitmarsh Landfill.

Photo 2. Native tide-flats exposed beneath landfill material in test pit G-7 (arrow).

CULTURAL RESOURCES REPORT COVER SHEET

Authors: Cooper, Jason B., M.A., RPA and Emily Scott

Title of Report: Results of an Archaeological Survey at the March Point (Whitmarsh) Landfill, City of Anacortes, Skagit County, Washington

Date of Report: June 22, 2011

County: Skagit Section: 3 Township: 34 Range: 2E

Quad: Anacortes South Acres: 14

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Export Files submitted? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
_____
_____
_____
_____
_____

- Submission of paper copy is required.
- Please submit paper copies of reports ***unbound.***
- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

June 22, 2011
Project No. 0-915-17033-0

AMEC Earth & Environmental Geomatrix
One Union Square, Suite 1020
600 University Street
Seattle, Washington 98101-4107

Attention: Dave Haddock

Subject: Results of an Archaeological Survey at the March Point (Whitmarsh) Landfill, City of Anacortes, Skagit County, Washington
AMEC Earth & Environmental Cultural Resources Short Report No. 26

Dear Dave:

AMEC Earth & Environmental, Inc. (AMEC), in association with AMEC Geomatrix, conducted a subsurface archaeological investigation at the March Point (Whitmarsh) Landfill, in Skagit County, Washington. AMEC Geomatrix was contracted by the Whitmarsh Landfill Potential Liable Party Group (PLP Group) to create a draft Remedial Investigation/Feasibility Study (RI/FS) work plan for the former Whitmarsh Landfill. The purpose of the RI/FS was to evaluate the nature and extent of contamination at the site based on the landfill's listing in the Washington State Department of Ecology Hazardous Sites List. March Point (Whitmarsh) Landfill is listed as Facility Site ID 2662 and is one of several sites within the Fidalgo Bay area of Anacortes scheduled for investigation and contamination abatement.

Beginning in 2008, AMEC Geomatrix began sampling work at the potentially hazardous site to determine the extent and source of any groundwater, surface water, soil, and/or sediment contamination. As part of this investigation, monitoring wells, soil borings, and test pits were placed within the landfill. Commenting on the draft work plan for the site, the Swinomish Indian Tribal Community requested that the archaeological potential of the area be considered during any subsurface investigations. In this capacity, AMEC provided an archeological monitor to observe the sampling process and test pitting associated with Phases I and II of the RI/FS (AMEC Geomatrix, Inc. 2008). No archaeological materials were observed during Phases I and II.

In May 2010, AMEC was contracted to further investigate the extent of the landfill sediments through active subsurface investigations along its southern border, near South March Point Road. This

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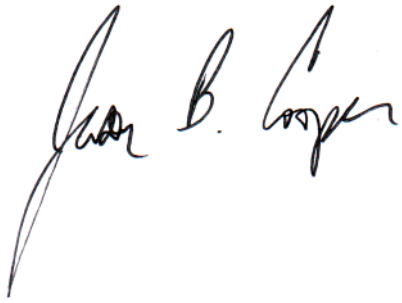
investigation consisted of a pedestrian survey and the excavation of 15 shovel test probes/scrapes situated along the southern border of the landfill. No archaeological materials were observed during this investigation. The report and full findings are presented below.

If you have further questions about the results presented below, please contact Jason B. Cooper at 425-368-1000, or at jason.cooper@amec.com.

Sincerely,

AMEC Earth & Environmental, Inc.



Jason B. Cooper, M.A., R.P.A.
Cultural Resources Lead

ERS/LS

MANAGEMENT SUMMARY

AMEC Earth & Environmental, Inc. (AMEC), in association with AMEC Geomatrix, conducted a pedestrian survey and subsurface archaeological investigation of the March Point (Whitmarsh) Landfill in Skagit County, Washington (**Figure 1**). The landfill is located near the City of Anacortes, just 800 feet northwest of State Highway 20. The project area is accessible from South March Point Road, and bordered by a railroad grade and the tide flats of Padilla Bay. The Area of Potential Effects (APE) consists of the footprint of the landfill property in both its horizontal and vertical extents (**Figure 2**). The landfill is located within an area of low to moderate potential for archaeological materials, but within an area traditionally utilized by the Swinomish Indian Tribe. However, the landfill was created on top of an active tide flat, and therefore contains very limited potential for archaeological deposits beneath the landfill. Non-tidal native sediments could be present along the base of the uplands slope, located along the landfill's southern border. Therefore, the subsurface investigation consisted of the excavation of shovel test probes (STPs) and shovel scrapes along the southeastern and southern boundary of the landfill (**Figure 3**). No archaeological materials were observed during this investigation.

ADMINISTRATIVE DATA

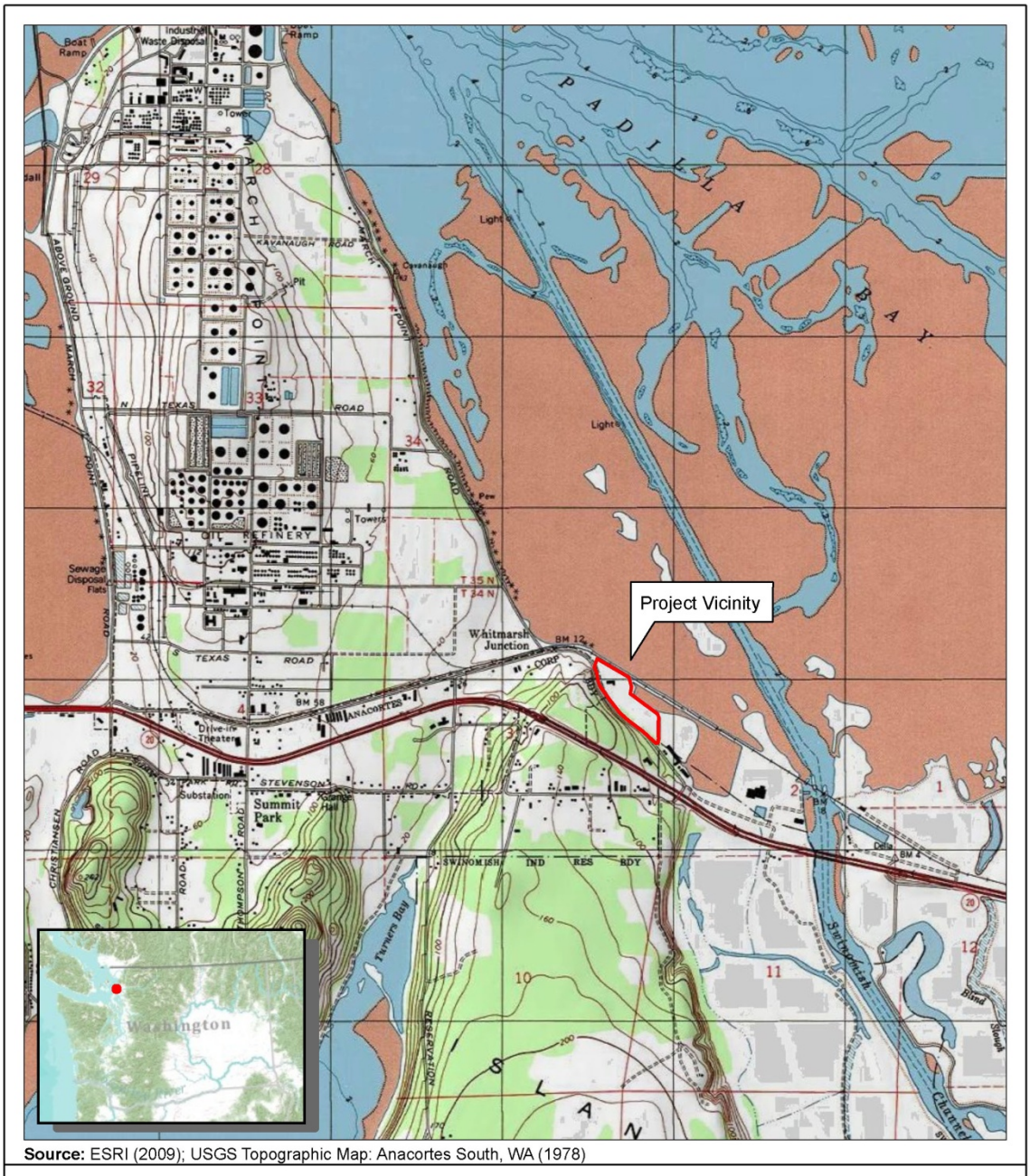
Report Title: Results of an Archaeological Survey at the March Point (Whitmarsh) Landfill, City of Anacortes, Skagit County, Washington
Author(s): Jason B. Cooper, M.A., R.P.A. and Emily R. Scott
Report Date: June 22, 2011

LOCATION

Cities: Anacortes *Counties*: Skagit *State Route(s)*: State Highway 20

¼ Section	Section	Township	Range
NE	3	34 North	2 East

USGS 7.5' Topographic Quadrangle(s): Anacortes South, Washington (1978)



Source: ESRI (2009); USGS Topographic Map: Anacortes South, WA (1978)

N

0 250 500 1,000 Meters

Project Vicinity

FIGURE 1

Project Vicinity Map

Whitmarsh Landfill Archaeological Survey

Section 3, Township 34 N, Range 2 E

8-915-16558-0

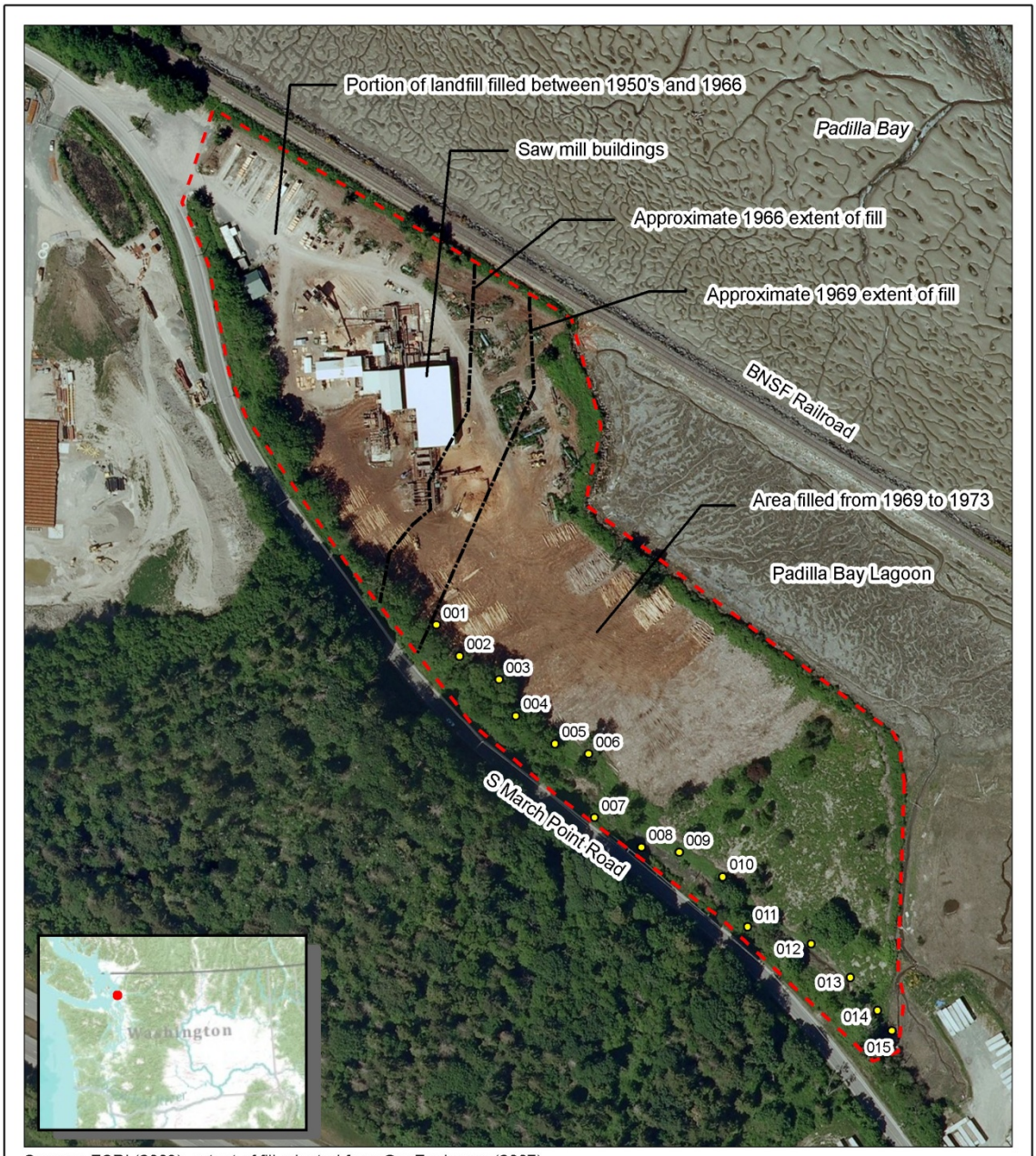
Source: ESRI (2009)

FIGURE 2

APE Map

Whitmarsh Landfill Archaeological Survey

8-915-16558-0



Source: ESRI (2009); extent of fill adapted from GeoEngineers (2007)

FIGURE 3

Shovel Test Probe Location Map

Whitmarsh Landfill Archaeological Survey

8-915-16558-0

PROJECT DESCRIPTION

In 2008, in response to a request by the Swinomish Indian Tribal Community to Skagit County, AMEC archaeologists conducted a record search and literature review for the landfill area and monitored subsurface activities related to the Remedial Investigation/Feasibility Study (RI/FS) (AMEC Geomatrix, Inc. 2008). These efforts found that no previously recorded archaeological sites were located within the landfill's vicinity, and that prior to the landfill the APE was an active tideland. Further research illustrated that the possibility of any archaeological deposits beneath the landfill would be very low. However, the southern boundary of the landfill did abut the natural slope of the uplands and as a result maintained a higher probability for unknown and significant cultural resources. Therefore, the subsurface investigation focused along the southern boundary of the landfill (**Figure 3**). The series of subsurface explorations began at the top elevation of the landfill slope and ended at water inundation along a drainage near the tidal flat interface (**Figure 4**). The former landfill's elevation ranges between 6 and 25 feet above mean lower low water.

REGULATORY ENVIRONMENT

Federal and State Agencies: Washington State Department of Ecology, Environmental Protection Agency

☒ Section 106

☐ Governor's Executive Order 05-05

☐ Other:

The former Whitmarsh Landfill is currently listed on the Washington State Department of Ecology (Ecology) Hazardous Site List as Facility Site ID 2662. As part of an investigation for Potentially Liable Parties, Ecology requested that the PLP Group perform an RI/FS to assess the contamination at the landfill and propose options for remediation and mitigation to these hazards. The proposed work plan suggested several subsurface investigations during Phases I and II of the RI/FS. Federal funds or federal permits may be required for this project which makes it a federal undertaking and is subject to the provisions of Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended and associated regulations 36 CFR 800 regarding the protection of cultural and historic resources.

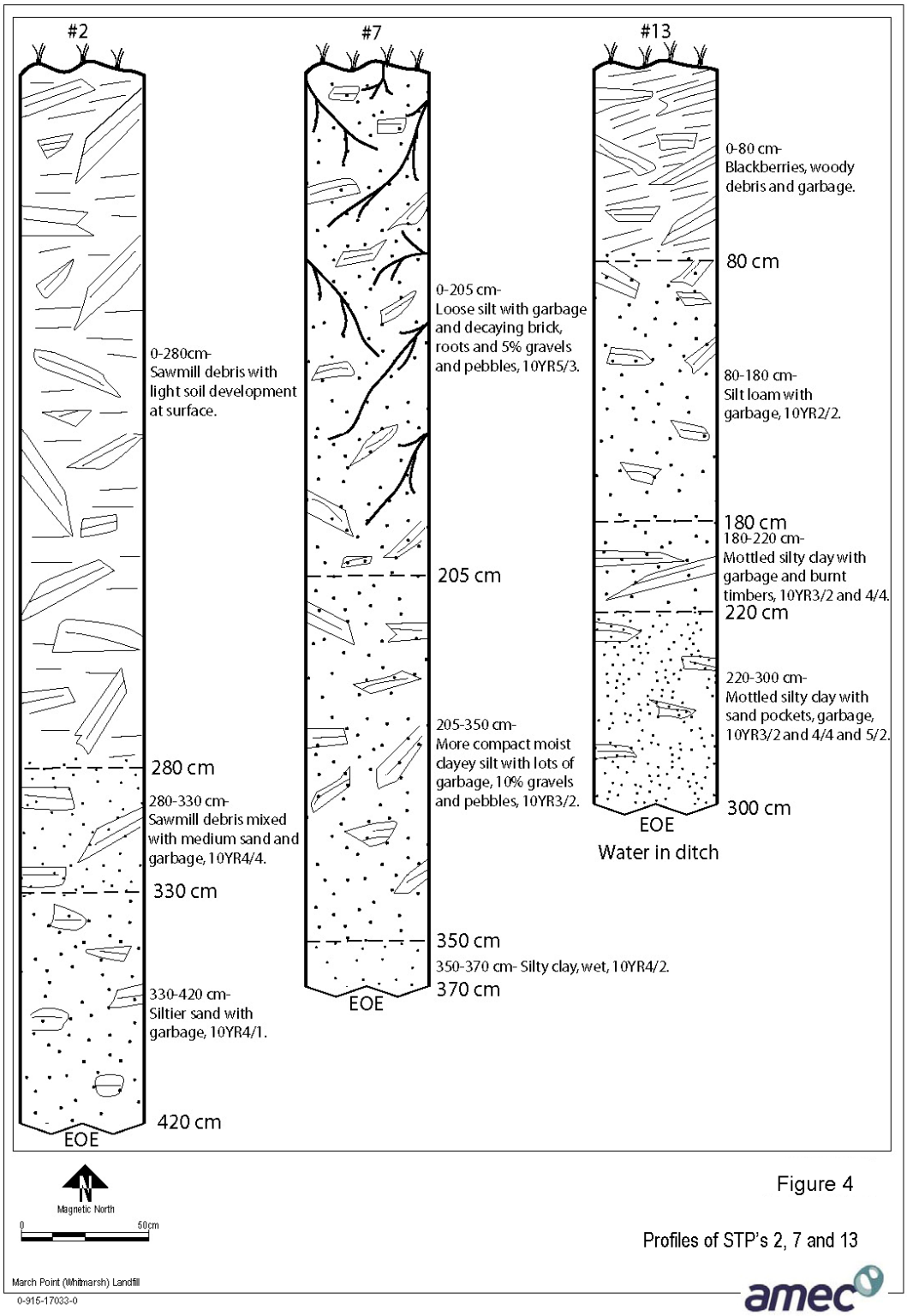


Figure 4

Profiles of STP's 2, 7 and 13

AREA OF POTENTIAL EFFECTS

Total Project Area (Acres): ~14 acres

APE Description and Justification: The March Point (Whitmarsh) Landfill is located within the southwest corner of Padilla Bay (**Figure 1**; **Figure 2**). The landfill is bounded to the south by South March Point Road, to the northeast and north by the Burlington Northern Santa Fe (BNSF) railroad and Padilla Bay, and the Swinomish Channel to the east and southeast (**Photographs 1, 2, and 3**). Drainage channels run along its north and south sides with tidelands to the east. The APE is situated on five Skagit County tax parcels (P19676, P19684, P19707, P19713, and P19761).

CONSULTATION WITH DAHP, TRIBES, AND OTHER INTERESTED PARTIES

Skagit County contacted the Swinomish Indian Tribal Community to address concerns related to the potential for buried archaeological deposits at the March Point (Whitmarsh) Landfill (Email K. Tahghighi to J. Chatters, October 2, 2008). A copy of this report will be sent to Washington State DAHP and Cultural Resources representatives for the Swinomish Tribe for review and comment. Any information gathered during DAHP consultation and tribal coordination will be included in the final version of this report, if applicable.

BACKGROUND RESEARCH

Emily Scott, AMEC archaeologist, conducted a record search and literature review for this project by consulting the DAHP Washington Information Systems for Architectural and Archeological Data (WISAARD) and by reviewing historic records, maps, and aerial photographs. Based on this review, it was determined that there have been no previously conducted cultural resources surveys within or adjacent to the project's APE and that no previously documented archaeological sites are recorded within the APE.

The March Point (Whitmarsh) Landfill was originally undeveloped tidelands owned by the Washington State Department of Natural Resources (DNR). In 1884, a historic map shows the Padilla Bay shoreline along the southwest and southern boundary of the landfill (GLO 1884). Land filling activities began in the 1950s, when this area was used as an unregulated dump for local residents (AMEC Geomatrix, Inc. 2008). In 1961, Skagit County received a lease from the state to operate a controlled dump at this location. Skagit County operated a burn dump at this site until 1969, when it converted to a sanitary landfill. Between 1969 and 1973, the landfill operated as the primary waste disposal facility for the cities of Anacortes, Burlington, La Conner, Mount Vernon, and Sedro-Wooley (Skagit County Health Department 1990). This facility was eventually closed in 1973 when the Inman Landfill went operational.

Sources Consulted:

☒ DAHP GIS Database
☒ General Land Office Maps
☒ Metsker's Maps
☒ NRCS Soil Survey
☒ Other: Historic Aerial Photographs

Previous Cultural Resources Surveys in or near the APE:

☐ None
☒ Listed Below

Three cultural resources surveys have been conducted within 1 mile of the project's APE (**Table 1**). These surveys are located south and southeast of the APE (Bush 2009; Regan 2000; Blukis-Onat 1996). Only one significant site (45KI225) was recorded during these surveys and is located more than a mile from the APE (see **Table 2**).

In 1996, Astrida Blukis-Onat of BOAS, Inc. reported on a survey of approximately 640 acres of Skagit River floodplains located to the southeast and east of the project's APE. The BOAS survey was located south of State Highway 20 and east of the Swinomish Channel and focused on the tidal slough and cultivated fields. Blukis–Onat (1996) describes this area as traditionally being used by *Sbdidi'abac*, a Swinomish family group. These tidal areas underwent massive dredging and fill episodes during the 20th century, which greatly altered the landscape. BOAS' survey consisted of pedestrian surface transects on recently plowed fields and transects parallel to slough channels. STPs were excavated at any possible features and along the upland/slough interface. Site 45SK225 was discovered within this upland/slough interface and consisted of a shell midden.

Table 1. Previous cultural resources surveys near or within 1 mile of the APE.

Author	Date	NADB #	Title	Distance from Current Project APE	Findings Relevant to the Current Project
Blukis–Onat, A.	1996	1345955	Cultural Resources Survey of the Swinomish Channel Marina South Highway 20	<1 mile	45SK225
Regan, D.	2000	1345937	A Cultural Resources Survey of SR 20, Swinomish Slough Bridges, MP 50.84 to 51.51, Near Anacortes	<1 mile	No new findings
Bush, K.	2009	1352459	Archaeological Investigation Report: Turners Bay Salt Marsh Restoration Project	>1 mile	No new findings

In 2000, Dennis Regan conducted a pedestrian survey of 5.1 acres to the east of the project's APE. Regan's survey focused on the footprint of the Swinomish Slough Bridge. His survey resulted in the finding of no archaeological deposits, due to the layers of dredge sediments and fill deposited onto the native tide flats. Regan (2000) refers to two large dredging episodes by the US Army Corps of Engineers in 1893 and 1935.

In 2009, Kelly Bush and Tamela Smart conducted a survey around Similk Bay for a marsh restoration project. Bush (2009) surveyed areas adjacent to roadways utilizing STPs and push probes. In total they excavated 5 STPs and 13 push probes. The subsurface excavation resulted in finding several historic artifact fragments (e.g., glass and ceramic) mixed with the fill deposits. No prehistoric cultural materials were observed during their survey.

Table 2. Previous recorded sites near or within 1 mile of the APE.

Site Number	Description	Distance from Current Project APE	NRHP Eligibility
45KI140	Lithic Scatter	1.2 miles	Not Evaluated
45KI149	Shell Midden	1 mile	Not Evaluated
45KI225	Shell Midden	.75 mile	Not Evaluated

Recorded Archaeological Sites in or near the APE:
☐ None
☒ Listed Below

No previously recorded archaeological sites are located within or directly adjacent to the project's APE. Three archaeological sites are located near or within 1 mile of the APE (**Table 2**). These sites are located to the west and south of the project area.

Site 45KI140 consists of a large lithic scatter situated approximately 1.2 miles west of the project's APE. This site was originally reported in the early 1970s by the land owner, Roger Moore. Moore reported finding several large stemmed projectile points within a pasture located in a "low broad valley between Padilla Bay and Fidalgo Bay" (Mattson 1980). In 1980, Mattson interviewed Moore and investigated his lithic collection. The archaeological finds associated within this site include several large projectile points and knife points possibly belonging to the Olcott, Coast Salish and/or Straits of Georgia Tradition (Mattson 1980).

Site 45KI149 is located approximately 1 mile southwest of the APE within the northeastern mud flats of Similk Bay. The site consists of a shell midden with fire modified rock (FMR) and charcoal. The site was recorded in 1982 by H. Jackson of Western Washington University (Jackson 1983). The site

was reported as being intact and “relatively undisturbed” with portions of the site protected by gravel caps from old logging roads (Jackson 1983). Site 45KI149 was recommended for further testing.

Site 45KI225 consists of a shell midden and is situated approximately 0.75 miles south of the APE. The site is located just west of a slough within the interface between a delta and glacial uplands. This area is considered to have ethnographic importance to Swinomish history as a place for resource exploitation and occupation. However, this area has undergone several dredging, infill, and environmental changes that have severely modified the traditional landscape. The site is currently in close proximity to cultivated farmlands, developed areas, and transportation byways. The archaeological materials found at this site included large quantities of marine shells, fish and mammal bone, charcoal, and FMR. The site was originally recorded in 1996 during a survey for the Swinomish Channel Marina (Bishop 1996; BOAS 1996). Subsequent testing by BOAS provided a generalized date of between 1500 BP to early historic times, although no historic artifacts were found, no charcoal samples underwent analysis, and no diagnostic elements related to the site were observed.

All of these archaeological sites described above are within the traditional ethnographic areas used by the Swinomish Indian Tribal Community for resource procurement and associated occupations. According to the Washington Statewide Archaeological Predictive Model, the APE is within an area of moderate to high archaeological potential. However, changes in land-use and the historic development of transportation corridors within and nearby the APE have altered the context of any intact archaeological deposits or buried them. Archaeological monitoring efforts (AMEC 2008) and the subsequent subsurface investigations presented within this report have failed to locate any archaeological deposits within the March Point (Whitmarsh) Landfill APE.

Recorded Historic Buildings or Structures in the APE:
☒ None
☐ Listed Below

There are no historic buildings or structures within 1 mile of the project’s APE that are listed or eligible for listing in the National Register of Historic Places (NRHP).

Soils:
The landfill is located at the base of a bluff that lies in the tidelands of Padilla Bay. The US Geological Survey (USGS) geologic map for the area (USGS 2000) indicates that the area of the landfill consists of “artificial fill.” Mapped soils in the APE include Olympia non-glacial deposits consisting of gravelly, organic-rich and/or silty sand, silt, clay, and peat; landslide deposits; and glacial till.

The APE surface geology consists of fill material used to cap the landfill during closure. The cover fill material is approximately 2 to 3 feet thick, and below the fill is landfill refuse (GeoEngineers 2007). A substantial layer of wood waste/debris, originating from the on-going lumber mill operations at the site, has been placed over the soil cap. The thickness of the wood waste layer is unknown.

Environmental and Cultural Context Summary:
Refer to Bush (2009), Blukis-Onat (1996), Willis (1975) and Sampson (1972) for an overview of the Pre-contact, ethnographic and historic contexts for this portion of Skagit County.

FIELDWORK

Dates of Survey: May 10 – 11, 2010
Field Personnel: Emily Scott and Tim Gerrish
Weather and Surface Visibility: Mostly sunny and clear. Visibility ranged from generally good to poor, with some high water inundation and environmental obstacles (e.g., blackberries, thick shrubs).
Methods: Pedestrian Survey, Shovel scrapes

The landfill has a relatively flat surface, with a sloping elevation of between 6 to 25 feet above mean lower low water. The landfill has a higher elevation along its northern and northeastern border, which slopes down towards the drainage channels along South March Point Road. The surface consists of woody sawmill debris, with slight soil development and thick vegetation along the drainage boundary and southern portion (**Photographs 1, 2, and 3**). The drainage runs parallel to South March Point Road (**Photograph 4**) and consists of steep slopes off from the road prism and landfill edge. The STPs were placed at regular intervals along the bank slope of the landfill and drainage interface to evaluate the possibility of the presence of native sediments and archaeological deposits (**Photographs 5 and 6**). No STPs were placed within the main landfill area since it consists of 100 percent non-native sediments and associated landfill debris which extends down to the former active mud flat sediments beneath. The covered mud flat sediments have a low potential for archaeological deposits since this was formerly an active tidal zone (GLO 1884).

AMEC archaeologists traversed along the landfill slope, north of South March Point Road, conducting a pedestrian survey in conjunction with the excavation of 15 STPs (**Figure 3; Table 3**). Theses STPs, in essence shovel scrapes, began at the top elevation of the exposed slope and ended at the base of the drainage, or until water inundation made it impossible to continue (**Photographs 7 and 8**). Each subsurface exploration location was documented with GPS, photographed, and recorded on AMEC Shovel/Auger Probe Forms.

Subsurface Tests:
☐ None
☒ Described Below

Encountered sediments within the shovel scrapes consisted mainly of sawmill debris, garbage, and silts and clays (**Figure 4; Table 3**). The sawmill debris was composed of large woody fragments and sawdust creating a large cap on top of the landfill sediments. Often, this sawmill layer was followed by a mottled layer of mixed fill consisting of garbage deposits and burned sediment with silt. The burned sediment and charcoal flecks are associated with the use of the landfill as a "burn dump" during the years 1961 to about 1969 (Skagit County Health Department 1990). The mixed sediments within the landfill layers are also a result of the use of fill being dispersed and moved on the landfill between 1969 to 1973, during the "sanitary dump" phase. At the base of several STPs, the sediments become more clayey. All the sediments encountered appear to be of extremely mixed context and hold little potential for intact archaeological deposits.

No archaeological materials were observed during the pedestrian survey or excavation of STPs. No intact native sediments were observed; all sediments appear to be fill deposits and of mixed context.

Table 3. Subsurface exploration descriptions and results

STP Number	Findings	Total Depth	Sediments	Sediment Interpretation
01	Negative	220 cm	0-220 cm: Sawmill debris (wood and sawdust); light surface vegetation, loose (10YR3/3)	Non-native
02	Negative	420 cm	0-280 cm: Sawmill debris 280-330 cm: sawmill debris with medium sand, garbage (10YR4/4) 330-420 cm: Finer silty sand with garbage (10YR3/1)	Non-native
03	Negative	580cm	0-90 cm: Sawmill debris (10YR3/3) 90-200 cm: Moist, loose silty sand with sawmill debris (10YR2/2) 200-280 cm: Mottled landfill burn layer, ash, fine silty sand with garbage (10YR5/3, 10YR4/1) 280-580 cm: Mottled medium sand, moist, loose, with pebbles (10YR3/1)	Non-native
04	Negative	540 cm	0-290 cm: Sawmill debris, garbage (10YR 3/3) 290-540 cm: Loose clayey silt, sawmill debris, garbage, pebbles (10YR2/2)	Non-native
05	Negative	430 cm	0-60 cm: Sawmill debris 60-200 cm: Fine/medium sand with sawmill debris, garbage, gravels and pebbles (10YR 3/2) 200-430 cm: fine/medium loose sand, gravels (10YR3/2)	Non-native
06	Negative	570 cm	0-320 cm: Loose medium sand, gravels and pebbles, roots (10YR3/2) 320-570 cm: Moist mottled clayey med sand, garbage (10YR5/1, 10YR3/1)	Non-native
07	Negative	370 cm	0-205 cm: Loose silt, garbage, roots, gravels (10YR5/3) 205-350cm: Compact moist clayey silt, garbage, gravels (10YR3/2) 350-370 cm: Wet silty clay (10YR4/2)	Non-native
08	Negative	340 cm	0-185 cm: Loam, sawmill debris, garbage (10YR3/2) 185-300 cm: Mottled clayey silt (10YR 2/1, 10YR4/1) 300-340 cm: Mottled wet clay (10YR4/1, 10YR4/6)	Non-native
09	Negative	480 cm	0-200 cm: Sawmill debris, garbage 200-270 cm: Silt, roots, gravels (10YR3/2) 270-380 cm: Clay, 45% gravels/pebbles (2.5Y5/1) 380-430 cm: Wet clay, charcoal flecking (10YR4/2)	Non-native
10	Negative	540 cm	0-220 cm: Sawmill debris, garbage 220-420 cm: Silty sand, garbage (10YR3/2) 420-540 cm: Mottled silty clay, clay pockets, garbage (2.5Y5/1, 10YR4/2)	Non-native

STP Number	Findings	Total Depth	Sediments	Sediment Interpretation
11	Negative	430 cm	0-110 cm: Sawmill debris, garbage (10YR3/2) 100-230 cm: Silt clay, gravel/pebbles, garbage (10YR3/3) 203-310 cm: Mottled clayey silt, charcoal flecking, garbage (10YR3/2, 10YR4/4) 310-430 cm: Compacted mottled silty clay, sand pockets, gravels/pebbles/cobbles, (10YR4/2, 10YR3/2, 7.5YR4/6)	Non-native
12	Negative	340 cm	0-200 cm: Sawmill debris, garbage (10YR2/1) 200-280 cm: Mix silt and clay (10YR2/2) 280-340 cm: Sitcky wet silty clay, charcoal flecking (10YR4/1, 10YR4/3)	Non-native
13	Negative	300 cm	0-80 cm: Sawmill debris, garbage 80-180 cm: silt, garbage (10YR2/2) 180-220 cm: Mottled silty clay, garbage, burnt garbage (10YR3/2, 10YR4/4) 220-300 cm: Mottled silty clay, sand pockets, garbage (10YR3/2, 10YR, 4.4, 10YR5.2)	Non-native
14	Negative	200 cm	0-200 cm: Mottled sticky silty clay, compact clay pockets, charcoal flecking, gravels/pebbles (10YR2.2, 10YR4/6, 2.5Y5/2)	Non-native
15	Negative	39 cm	0-39 cm: Wet sticky clay, charcoal flecking and lots of roots, organics (10YR3/2)	Mudflat, out of context

CULTURAL RESOURCES IDENTIFIED

Archaeological Resources:

☒ None

☐ Listed Below

The record search, literature review, and subsurface survey of the March Point (Whitmarsh) Landfill APE resulted in the identification of no new cultural resources. The landfill is composed of mainly artificial fill deposits related to its use as a waste disposal facility during the 1950s through 1973, and subsequently capped by sanitary fill and sawmill debris. The native sediments beneath the landfill consist of tidal mud flats, with a low potential for archaeological deposits. The subsurface investigation was conducted within areas adjacent to the upland slopes, and therefore might have a higher potential for native sediments and archaeological deposits. No cultural materials, or undisturbed sediments, were observed during the survey.

Buildings or Structures:
☒ None
☐ Listed Below

There are no historic buildings or structures within 1 mile of the project's APE that are listed or eligible for listing in the NRHP.

CONCLUSIONS

The following are: ☐ Determinations ☒ Recommendations

☒ No Historic Properties Affected
☐ No Adverse Effects to Historic Properties
☐ Adverse Effects to Historic Properties

Other Conclusions and Recommendations:
AMEC conducted a pedestrian survey and subsurface archaeological investigation of the March Point (Whitmarsh) Landfill in Skagit County, Washington. The landfill is located within an area of low to moderate potential for archaeological materials, but within an area traditionally utilized by the region's Native Americans. However, the landfill was created on top of an active tide flat, and therefore contains very limited potential for archaeological deposits beneath the landfill. Non-tidal native sediments could be present along the base of the uplands slope, located along the landfill's southern border. Therefore, the subsurface investigation consisted of the excavation of STPs along the southeastern and southern boundary of the landfill. No archaeological materials were observed during this investigation.

If cultural resources (e.g., artifacts such as stone tools, bottles [> 50 years old], ceramics [> 50 years old], bone, or shell) are discovered during project related excavation that are not associated with the historic land fill, all work in the vicinity should stop. The County should work with a professional archaeologist and the Washington State DAHP to evaluate the significance of the find. State statues RCW 27.44.055, 68.60.055, and 68.50.645 require any individual discovering human remains to report them to county law enforcement immediately.

ATTACHMENTS:

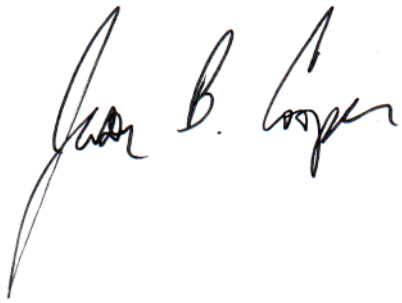
☒ Location Map (Figure 1)
☒ APE Map (Figure 2)
☒ Shovel Test/Transect Map (Figure 3)
☐ Historic Property Inventory Form(s)
☐ Archaeological Inventory Form(s)
☐ EZ-1 or EZ-2 Form(s)
☒ Photos (See Attachment)
☒ Other: Shovel Test Profiles (Figure 4)

CERTIFICATION

We certify that:

- We are AMEC Earth & Environmental Cultural Resources Specialists meeting all applicable state and federal professional qualification standards;
- We have reviewed, evaluated, and documented the methods and observations prepared here; and
- This report is accurate to the best of our knowledge.

Name: Jason B. Cooper, M.A., R.P.A. and Emily Scott
Signatures:



Date: June 7, 2011

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Photo 1. View looking west-southwest toward Whitmarsh Landfill, circa 1977. Project area located within polygon.

Photo 2. View looking down at Whitmarsh Landfill, circa 2006. The entire project area is not visible in this oblique aerial.

Photo 3. View looking down at Whitmarsh Landfill, circa 2009. The entire project area is not visible in this oblique aerial. This area was the focus of our field investigation.

Photo 4. View looking southeast along S. March Point Road. Project area is located left of the road.

Photo 5. View looking north-northwest toward Whitmarsh Landfill Archaeological Survey Area.

Photo 6. View looking north during shovel testing for the Whitmarsh Landfill Archaeological Survey near the southeastern corner of the APE.

Photo 7. AMEC archaeologist Tim Gerrish inspecting overgrown bank for the Whitmarsh Landfill Archaeological Survey.

Photo 8. View looking northeast toward exposed bank above ditch that runs parallel to South March Point Road. Fieldwork was geared toward identifying native sediment vs. fill material within APE.

US Army Corps of Engineers
Seattle District

BIOLOGICAL EVALUATION
FOR INFORMAL ESA CONSULTATION
For: NWS-2021-477 (Corps Reference Number)
Version: May 2012

***** This form is for projects that have insignificant or discountable impacts on listed species. It contains all the information required for a biological evaluation, but in abbreviated form and with minimal instructions on how to fill it out. For more detailed instructions, a format for development of a biological assessment or biological evaluation can be found on the Seattle District Corps website (www.nws.usace.army.mil – click on regulatory and then on endangered species, BA Template). You may also contact the Corps at 206-764-3495 for further information.***

Drawings and Photographs - ***Drawings and photographs must be submitted***. Photographs must be submitted showing local area, shoreline conditions, existing overwater structures, and location of the proposed project. Drawings must include a vicinity map; plan, profile, and cross-section drawings of the proposed structures; and over- and in-water structures on adjacent properties. (For assistance with the preparation of the drawings, please refer to our *Drawing Checklist* located on our website at www.nws.usace.army.mil Select Regulatory – Regulatory/Permits – Forms.) Submit the information to: U.S. Army Corps of Engineers, Regulatory Branch, P.O. Box 3755, Seattle, Washington 98124-3755.

Date: 10/6/2021

SECTION A - General Information			
1. **Applicant name**: Margo Gillaspy			
Mailing address: 1800 Continental Place, Mount Vernon, WA 98273-5625			
Work phone: (360) 416-1578	Home phone:	Email: margog@co.skagit.wa.us	Fax:
2. **Joint-use applicant name (if applicable)**:			
Mailing address:			
Work phone:	Home phone:	Email:	Fax:
3. **Authorized agent name**: Theresa Price			
Mailing address: 3500 188th Street SW, Lynnwood, WA 98037			
Work phone: (480) 236-5087	Home phone:	Email: theresa.price@ woodplc.com	Fax:
4. **Location where proposed work will occur** Address (street address, city, county): 9963 South March Point Rd, Anacortes, Washington Location of joint-use property (street address, city, county): Waterbody: Padilla Bay			
¼ Section:	Section: 02 and 03	Township: 34N	Range: 2E
Latitude: 48.46275236° N		Longitude: 122.52989635° W	

5. Description of Work:

Include project drawings and site photographs.

Describe the proposed project in detail. Please describe any mitigation that is being proposed for impacts from your project. Attach a mitigation plan as an appendix, if appropriate.

Project Location

The March Point Landfill (the project site) is bounded by South March Point Road to the south, the BNSF Railway Company (BNSF) railroad causeway and Padilla Bay to the north and northeast, and the Swinomish Indian Reservation to the east and southeast (Sheet 1). State Route 20 runs generally east-west about 800 feet southeast of the site beyond South March Point Road. The landfill is buttressed with concrete and anthropogenic debris along its saltwater edge to the northeast, which includes the BNSF right-of-way. The embankment under the railroad serves as a dike separating the Padilla Bay Lagoon from Padilla Bay. A short trestle (approximately 110 feet wide) in the railroad embankment allows for saltwater exchange between the lagoon and Padilla Bay. The area southeast of the landfill is owned by the Swinomish Indian Tribal Community and has been developed as light industrial/commercial area.

East of the site there is a trucking company, a gift shop, and fireworks stands, as well as the Swinomish Indian Tribe hotel and casino further to the east. To the west of the site there is an industrial tank fabrication company. South of the site and adjacent to the industrial tank fabrication company there is a great blue heron nesting colony, referred to as the March Point Heronry (Sheet 2).

Project Background

The project site started as an informal roadside dump in the 1950s and was later operated by Skagit County as a landfill from 1961 until its closure in 1973. As part of closure requirements in 1973, the project site was graded and covered with 2–3 feet of soil, as a landfill cap. The soil cap was installed in accordance with regulations in effect at that time, including minimum functional standards for soil waste handling, enacted by Washington State under Chapter 173-301 Washington Administrative Code (WAC). filed in 1972. Due to the project site's proximity to and potential impacts on Padilla Bay and the inner lagoon, it was identified by the Washington State Department of Ecology (Ecology) as a high-priority cleanup area under the Puget Sound Initiative. Until approximately 2010, the northern two-thirds of the project site was occupied by a cedar log sawmill, which had operated in this location since the 1980s. The former mill area currently contains building foundation concrete slabs, partially dismantled buildings, and an intact shop building.

In 2014 and 2015, approximately 44,000 cubic yards of wood waste debris from the sawmill was hauled off site and recycled as compost material; an estimated 13,000 cubic yards of wood waste debris mixed with rock remains on site. Most of this material is stockpiled in two piles southeast of the sawmill foundations. The majority of the rest of the residual wood waste is located near the former mill building foundation.

The remedial investigation showed the following exceedances of the preliminary cleanup levels:

- ***Soil:*** total and dissolved metals, polychlorinated biphenyls (PCBs), total petroleum hydrocarbons in the gasoline and oil ranges, benzene, semivolatile organic compounds (SVOCs), and pesticides.
- ***Groundwater:*** total and dissolved metals, PCBs, benzene, SVOCs, and pesticides.
- ***Seeps:*** total and dissolved metals, benzene, 1-methylnaphthalene (an SVOC), PCBs, and 4,4'-DDE (a pesticide).

- ***Surface water:*** total and dissolved metals, benzene, SVOCs, and 4,4' DDD (a pesticide).

A sediment investigation was performed at the project site in a series of events from 2008 through 2011. The results of the sediment investigation concluded that potential discharges from the landfill do not have a negative effect on the sediment biota. Therefore, no impacts on sediments in the inner lagoon or Padilla Bay associated with the landfill were identified.

In addition, landfill gas (LFG) monitoring in 2011 and 2012 revealed elevated methane concentrations within the wood waste that was placed over the original soil cover. The highest concentrations of methane generally coincided with the thickest accumulations of wood waste. Since only a portion of the wood waste remains, the concentrations of LFG should be much lower today.

A conceptual site model was developed that suggests that areas exist along the landfill boundary where groundwater within the solid waste either is seeping or has the potential to seep into surface water. The conceptual site model showed the exposure pathways and receptors for human health receptors are as follows:

- Direct human exposure to solid waste through construction activities;
- Seasonal infiltration of surface water into the solid waste, causing discharge of groundwater to the inner lagoon through seeps, where it could eventually affect marine biota;
- Migration of shallow groundwater though the Bay Mud into the underlying Lower Aquifer and subsequent discharge to surface waters or marine sediment, where it could eventually affect marine biota;
- Potential exposure of solid waste through erosion and direct release to surface waters/marine sediment of the inner lagoon, where it could eventually affect marine biota;
- Volatilization, dust emission, and inhalation of chemicals and methane gas generated from solid waste.

Purpose and Need

The general purpose of the project is to control the release of pollutants into the environment. The project will implement a permanent cleanup action that meets cleanup levels and remedial action objectives under the Model Toxics Control Act (WAC 173-340) and the applicable landfill closure requirements as applicable or relevant and appropriate requirements (WAC 173-304). The need for the project is established by the terms of a Consent Decree that was signed in 2020. The project site is listed on Ecology's Hazardous Sites List; sites on this list are being investigated and cleaned up as part of the Puget Sound Initiative.

Project Overview

Several remedial alternatives were developed for this project site and were evaluated using seven criteria: protectiveness; permanence; long term effectiveness; short term risk; technical and administrative implementability; public concerns; and cost. In addition, the restoration time frame for each alternative was considered and a disproportionate cost analysis was performed for the alternatives.

Based on this evaluation, the selected alternative was the installation of a geosynthetic clay laminated liner (GCLL) cap at the project site. Installation will include the following activities:

- Demolishing the structures on site.

- Installing stormwater control measures on and around the landfill.
- Moving 45,000 cubic yards of solid waste, including concrete and anthropogenic debris on the shorelines, from the edges of the landfill inward, to allow construction of a permanent cap without expanding the site beyond the approximate extent of the solid waste which is defined as the landfill footprint (project footprint).
- Grading the waste to a mound per the Minimum Functional Standards in WAC-173-304 to promote stormwater runoff.
- Installing a 3-foot-thick cap system, including an enhanced GCLL extending to the Bay Mud. The engineered cap will minimize or eliminate infiltration of groundwater into the landfill and the GCLL will minimize discharge of groundwater from the landfill to surface waters.
- Treating 1.3 million gallons of wastewater generated during the construction work and discharged to a publicly owned treatment works.
- Installing an LFG collection system, which will vent LFG to the atmosphere, as well as providing groundwater collection/treatment as needed to prevent off-site migration.
- Installing a perimeter road for access to wells and the LFG vent system.
- Installing stubouts for possible future use of public water and electricity.
- Performing long-term monitoring of groundwater (quality and levels for hydraulic control purpose), seepage, LFG, and the landfill closure facility.
- Implementing institutional controls when the cleanup action is complete, including installation of a permanent chain link fence around the perimeter of the landfill to limit site access.
- Performing habitat restoration at the shoreline, including providing temporary irrigation, piping, and ancillary equipment.

The existing concrete and anthropogenic debris will be removed from the shoreline and the shoreline slope will be flattened to 5H:1V (horizontal:vertical) and a multi-layer cap system installed, the upper 18 inches of which will be of suitable soil to facilitate development of vegetative communities. The vegetation that will be selected will include a variety of native shrubs; however, trees will not be planted to avoid having root systems that could penetrate the cover soils and possibly damage the GCLL. A temporary watering system may be installed to provide supplemental water for the plantings. Approximately 1.72 acres of habitat will be created and/or restored upon completion of the project. The cleanup project is expected to significantly reduce leachate seepage to surface water and groundwater, control LFG venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage. The shoreline vegetation plantings that will be installed along the shoreline will be native species that occur along the greater Padilla Bay shoreline. The cleanup project is expected to significantly reduce leachate seepage to surface water and groundwater, control LFG venting, and limit sedimentation into Padilla Bay due to uncontrolled surface water drainage.

The proposed project includes construction activities ancillary to and including the placement of a new landfill cap system. The major elements of the proposed project are described in the following sections.

Erosion control measures, such as silt fences on land and a debris boom or floating silt fence in the water, will be placed prior to the start of excavation. Any active utilities will be capped outside the landfill. Compliance monitoring will include construction performance monitoring to ensure the work is

performed in compliance with the project requirements. Post-construction performance monitoring of groundwater, seeps, LFG, and stormwater will be conducted after construction of the landfill cap is complete to determine (1) whether the cap is performing as expected, (2) whether leachate is continuing to seep from the landfill into Padilla Bay, and (3) whether lateral migration of groundwater into the solid waste or lateral migration of LFG away from the landfill is occurring. Ecology will review the selected cleanup action every five years to ensure protection of human health and the environment.

Demolition

The existing structures, concrete slabs, and concrete foundations on site will be demolished; these features are shown on Sheet 2, which are based on a distance of about 1 foot from the final surface grade of the solid waste. This separation will allow proper grading of the landfill and installation of the cap system without removing all the concrete. The metal debris from the demolition will be shipped off site for recycling. Recycling and/or reuse of the concrete debris from demolition of the slabs and foundations will be evaluated during the design. Demolition activities are proposed to occur outside of the heron breeding season (April through July).

Vegetation Removal

All vegetation within the project footprint of the excavation will be cleared prior to site grading. Tree and brush cutting activities are proposed to occur outside of the heron breeding season (April through July). Vegetation (trees, shrubs, and bushes) will be removed and recycled off site for compost. The possibility of chipping the trees and using the chips on the final surface of the landfill will be evaluated during the design. The remainder of the vegetation currently is not being considered for reuse on site due to the likely presence and re-introduction of noxious weeds (e.g. blackberry) to the new landfill cap.

Existing Landfill Soil Cover Salvaging

The existing soil cover on site is approximately 2 feet thick on average and is primarily sandy (porous). The soil cover will be salvaged to the extent possible, while ensuring no waste is removed. This material is suitable as use for an LFG collection layer and will be used for this purpose over the final graded surface of the solid waste. If substantial additional cover soil is salvaged, it will be sampled and analyzed for possible use in the capping system.

The possibility and cost effectiveness of salvaging some of the remaining approximately 6,000 cubic yards of wood waste will be evaluated during the design. Nearly all of the remaining wood waste is mixed with rock at a ratio of approximately 1 to 1. Some of this material may be salvaged to construct the access road on top of the landfill.

Excavation

The edges of the landfill will be excavated and mounded near the center of the landfill. The excavation and mounding effort is intended to reduce the project footprint and eliminate presence of any waste outside the property boundary. In order to provide the necessary space to allow for construction of the engineered cap without expanding the current project footprint, the existing concrete slabs and concrete and anthropogenic waste along the edges of the landfill will be excavated to the full depth of the cap system, extending into the landfill to a horizontal distance needed for the new cap. The bottom of the solid waste is assumed to be at about elevation 5 feet mean lower low water (MLLW), approximately matching the current elevation of the Bay Mud within the inner lagoon, which ranges between elevations 5 and 8 feet MLLW (Sheet 3 and Sheet 4).

Solid waste along the shoreline of the Padilla Bay inner lagoon will be removed to a horizontal distance of 10 to 12 feet into the landfill and sloped up at approximately 20 percent (5H:1V), to about elevation 15 feet MLLW. Based on the engineer's experience on several other shoreline projects completed along waterways, typical stable slopes within the intertidal zone range from 4H:1V to 5H:1V, depending on the tide and wave actions. It is conservatively assumed the slope of the final grade of the landfill below elevation 15 feet MLLW, facing Padilla Bay, would be 5H:1V. Along the landward sides of the landfill, excavation will be sloped at approximately 33 percent (3H:1V).

During the waste excavation and handling, a representative will be on site and will inspect the excavated material visually for the presence of potentially regulated waste. Olfactory observations will also be used (e.g., petroleum odor, etc.) to screen for potentially regulated waste. Any such waste that is identified (e.g., car batteries) will be set aside with a "waste pending analysis" label, profiled, and shipped off site to an appropriate recycling or disposal facility. It is not expected that any significant volume of excavated material will be transported off site.

The excavation along the shoreline will be conducted using tracked equipment (e.g., excavators and dozers). Prior to excavating along the shoreline, a trench will be excavated near the top of the shoreline slope to intercept groundwater or surface water runoff to reduce the potential of migration of contaminated water off site. To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted from the upland at low tide when the work can be conducted "in the dry." The shoreline excavation will be conducted in strips perpendicular to the shoreline. The width of the strips will be such that the segment is excavated, graded, and the modified bentonite clay GCLL with polymer is placed during one tide cycle. The excavation at the toe of the landfill will extend at least 6 inches into the Bay Mud to anchor the GCLL. A shallow trench will be excavated into the Bay Mud and the GCLL cover will then be laid into the trench. The Bay Mud will then be re-compacted on top of the GCLL. This approach will effectively tie the polymer-enhanced GCLL into the Bay Mud, thus preventing or minimizing the tidal water or the perched groundwater/leachate from flowing freely under the polymer-enhanced GCLL.

Additional details on the timing of excavation and cap placement along the shoreline are provided in Section 6A of this document.

Landfill Cap Layers

The landfill cap will consist of several layers. The excavated solid waste will be placed on the landfill in compacted lifts and graded. The compaction of the waste will minimize post-construction settlement of the cap. Based on observations made during previous field activities, the final surface of the graded solid waste will most likely be mainly soil rather than the actual solid waste. The salvaged soil cover will then be placed over the waste across the entire landfill, in a layer of approximately 8 to 12 inches thick, depending on the actual quantity of the cover soil salvaged. This will serve as a cover layer over the solid waste and LFG collection layer, and will provide a relatively smooth surface for placement of the GCLL. The LFG collection and venting piping will be installed within this layer and will be composed of a network of 4-inch-diameter perforated plastic pipes with risers to collect and passively vent LFG into the atmosphere. Sheet 4 shows the landfill cap system detail.

The GCLL will be placed in strips, typically perpendicular to the slope and then rolled downhill. Different rolls of GCLL will be overlapped approximately 2 feet. A thin layer of bentonite powder will be placed over the overlapped section to serve as sealant. The GCLL rolls or pieces on the downhill direction will be shingled to promote stormwater runoff downhill and reduce the likelihood of water flowing between the

overlaps and entering the landfill. GCLL placed below elevation 16 MLLW will be modified bentonite clay GCLL with polymer, which is resistant in a saline environment, and maintains its low permeability. This elevation was established during the feasibility study (Amec Foster Wheeler 2017) to account for future sea level rise and possible tsunamis.

Prior to installation of the GCLL, an 8-inch-thick layer of sand (porous material) will be placed to protect the GCLL from puncture by landfill waste. The GCLL will be covered with a 6-inch layer of sand to serve as a protective layer and to provide a drainage media for the stormwater infiltrating the surface of the cap. This layer may be constructed with imported drainage media, or excess salvaged cover soil if the material passes chemical characterization and permeability testing. The drainage layer will be covered with a 12-inch-thick layer of coarse crushed rock. This layer will serve primarily as a barrier against burrowing animals and plant roots to protect the integrity of the GCLL. This layer will also serve as a drainage layer. The possibility of altering material and thicknesses of these two layers will be evaluated further during the design. The final top two layers of the cap will be 12 inches of silty soil cover to reduce stormwater infiltration, and 6 inches of topsoil to sustain vegetation growth. The possibility of adding a layer of geotextile separating the coarse rock layer from the cover soil above it will be evaluated during the design. The completed cap will be hydroseeded except along the shoreline, where shrubs will be planted from about mean tide level (elevation 10.27 feet MLLW) and up to approximately elevation 16 feet MLLW, to create/restore new habitat.

It is not expected that any significant amount of excavated material will be transported off site. Excavated material will be moved from the edges of the landfill inward, to allow construction of a permanent cap without expanding the project footprint.

Dewatering

The project will be constructed during the dry season (May through October), when the level of perched groundwater is typically the lowest, and the low tide generally occurs during daylight hours. The existing perched groundwater within the landfill is typically encountered at elevation 11.5 feet MLLW during the summer months. Perched groundwater will need to be recovered when excavating portions of the solid waste below the perched groundwater surface. Standard construction dewatering pumps and hoses will be set up to remove the perched groundwater as excavation proceeds.

During the excavation along the shoreline, dewatering pits will be excavated near the shoreline to dewater the waste prior to the start of shoreline excavation. Dewatering is expected to prevent or minimize the discharge of perched groundwater into the bay during earthwork on the shoreline. It is possible that dewatering along the majority of the shoreline that has not exhibited seepage will substantially reduce groundwater levels. The historical aerial photographs show placement of an earthen dike in those areas, which may be the reason for the absence of seeps. The location, extent, and quality of the earthen dike will be evaluated during the design for dewatering. Conservatively, we assume that dewatering will be needed. An initial water management system has been proposed and design will be refined during project development.

Water Management System

Construction

The work will be conducted primarily during the dry summer season. Therefore, the need for stormwater management during construction will be limited. Furthermore, as was observed during the previous wood waste removal activities, the landfill surface is porous and nearly all stormwater that does not evaporate

will infiltrate. However, temporary erosion control measures will be installed and maintained, and a treatment system will be set up that will process both any accumulated stormwater and the perched groundwater/leachate generated from dewatering to a degree that meets the discharge standards for the publicly owned treatment works. The actual discharge standards will not be established by the publicly owned treatment works until the time of the design, when daily and total volumes of discharge will be calculated, and the anticipated concentrations of pollutants will be determined. However, it is assumed that the on-site treatment system will have a settling tank to remove the bulk of the suspended solids, a sand filter system to remove the smaller portion of the suspended solids, granular activated carbon vessels to remove excess organic content, and bag filter housings to remove the finer portion of the remaining suspended solids. During the design it may be determined that an aeration tank will be necessary to precipitate total metals in excess of applicable discharge limits. Any sludge or sediment that accumulates in the settling tank will be profiled and disposed of according to state and federal requirements.

Two or more 20,000-gallon-capacity settlement tanks will be set up on site to hold the removed groundwater and allow the majority of the suspended solids to settle out. A groundwater filtration system consisting of sand filters will remove the majority of remaining suspended solids. The filtered water will be stored in two or more post-filtration holding tanks. Based on the approximately 1,500 linear feet of shoreline and assuming a porosity of 45 percent within the solid waste, it is estimated that approximately 1.3 million gallons of groundwater could be generated. The filtered water will be tested in accordance with the testing requirements of the City of Anacortes wastewater treatment plant. If the groundwater test results meet the criteria established by the City of Anacortes wastewater treatment plant, the removed groundwater will be transported to the facility by tanker trucks. Based on tanker and trailer capacity of 6,000 gallons, approximately 220 truck trips will be required to transport the groundwater to the treatment facility.

Operation

The completed landfill cap will be mounded in the center with downward slopes toward the perimeter to drain stormwater from both the surface of the landfill and the above the GCLL layer through the drainage layer. The drainage layer will daylight to perimeter ditches on the landward sides of the landfill and into the bay on the waterward side. The ditches shown on project drawings will include both new and partly or wholly reconstructed existing ditches. Additional details concerning the ditch design are provided in the Engineering Design Report. The perimeter ditches will remain essentially the same as they currently exist and will drain into the bay.

Best Management Practices

Best management practices (BMPs) implemented during construction and operation to avoid or minimize impacts on the environment may include:

- All applicable permits for the project will be obtained prior to construction. Construction and operation will be performed according to the requirements and conditions of these permits.
- Work will be conducted from the upland at low tide when the work can be conducted "in the dry" to avoid in-water work. The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will always be on land and will excavate only when the tide is below the edge of the excavation.
- In-water construction activities will comply with state water quality standards.

- The Contractor will be responsible for preparing a Spill, Prevention, Control, and Countermeasures Plan to be used for the duration of the project to safeguard against unintentional spills of fuel, lubricants, or hydraulic fluid from construction equipment.
- The selected Contractor will prepare and implement a Stormwater Pollution Prevention Plan for the project.
- Erosion control measures will be implemented during construction as shown in the Erosion Control Plan prepared for the project.
- The Contractor will be responsible for preparing a Materials Management Plan for handling and disposing of excavated material during construction and complying with the Ecology Consent Decree Materials Management Plan.
- All equipment to be used for construction activities will be cleaned and inspected prior to arriving at the project site to ensure no leaks are present and the equipment is functioning properly.
- Soil stabilization BMPs will be used to stabilize soils, including stockpiles. These BMPs will consist of compost blankets, seeding and mulching, or matting/rolled erosion control products. Compost blankets can be used as temporary erosion control and then be mixed into the soil to help meet the post construction soil requirements.
- Erosion control BMPS, such as compost stocks, berms or blankets, filter fence, straw wattles, containment berms, brush barrier, gravel filter berm, a sediment pond, or sediment traps, will be implemented to prevent the transport of soil from the project site. Sandbags also may be utilized to prevent sediment from being discharged off site.

Shoreline Excavation

To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted from the upland at low tide when the work can be conducted "in the dry." The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based work will always be on land and will excavate only when the tide is below the edge of the excavation. Working at low tide has been shown to be very effective at limiting suspension of potentially contaminated sediment without the placement of an interim cover over the excavation face between tide cycles; however, for an additional level of protection, a layer of sacrificial fill material or geotextile fabric will be placed at the end of every tide cycle over any exposed soil.

The shoreline excavation will be conducted in strips perpendicular to the shoreline to minimize the amount of shoreline excavation at a given time. Please see Section 6A of this document for additional details on construction timing and sequence of events for shoreline excavation and placement of the new GCLL.

Heron Management Plan

Prior to construction, a Heron Management Plan for the March Point Heronry will be prepared. Work will include conducting noise monitoring during the breeding season (April through July) the year prior to anticipated construction that will establish background noise levels; identifying daily and seasonal noise restrictions; and proposing mitigation actions. Noise monitoring was conducted during the breeding season in 2021 and included observations of heron activities at the project site and adjacent heronry. The established noise levels will be compared against the anticipated construction noise levels and durations. Recommendations will be developed for the construction activities. Finalization of the Heron

Management Plan will likely include coordination with the City of Anacortes, Ecology, and local stakeholders.

Compliance Monitoring

Compliance monitoring will include construction performance monitoring to ensure the work is performed in compliance with the project requirements. Post-construction performance monitoring of groundwater, seeps, LFG, and stormwater after will be conducted after construction of the landfill cap is complete to determine (1) whether the cap is performing as expected, (2) whether leachate is continuing to seep from the landfill into Padilla Bay, and (3) whether lateral migration of groundwater into the solid waste or lateral migration of LFG away from the landfill is occurring. Ecology will review the selected cleanup action every five years to ensure protection of human health and the environment.

Habitat Mitigation

Skagit County has taken steps to minimize wetland and shoreline impacts; however, impacts on both wetlands and shoreline are unavoidable given the location of the landfill, extent of solid waste in wetlands, and the construction requirements to install the GCLL and construct adequate shoreline slopes. Mitigation for the excavation of the shoreline slopes, which include wetland areas, was identified in the Draft Cleanup Action Plan (Ecology 2020) as a component of the project. The proposed mitigation included regrading the slopes to establish a stable grade and revegetating the shoreline with a variety of native shrubs suitable to the adjacent estuarine habitat.

The project will be self-mitigating through re-establishment on site. The project will create 0.35 acre (15,480 square feet) of new area that will be tidally influenced below high tide line (HTL), at elevation 10.27 feet MLLW, and suitable for natural colonization by marsh plants from the adjacent Padilla Bay inner lagoon (estuarine marsh as shown on Sheet 2). The new area below HTL is shown on Sheet 5 (Area between Pre- and Post- Construction HTL). At the completion of the landfill regrading and placement of the cap system and topsoil, the HTL elevation will move horizontally toward the upland, such that new wetted area of the Padilla Bay inner lagoon will be created because the reshaped shoreline will be topographically flatter than the existing steep shoreline, with newly regraded slopes at approximately 5H:1V.

An additional 1.37 acres (59,480 square feet) identified as the "shrub riparian area" of shoreline (2,315 linear feet) will be planted with native shrubs suitable for the estuarine environments associated with the Padilla Bay inner lagoon (Sheet 5; "Shrub Riparian Area [From HTL to 16 feet MLLW"]). The shrub species to be planted will be chosen based on shrub communities currently colonizing the project site or nearby shoreline areas. The purpose of the riparian shrub buffer is to enhance the functions of the adjacent estuarine marsh.

Project impacts on riparian habitat were assessed using the Nearshore Habitat Conservation Calculator by the National Marine Fisheries Service. Nearshore habitat functional values and habitat impacts at the project site were assessed for the area 130 feet landward of the highest astronomical tide (elevation 10.7 feet MLLW) as utilized in the nearshore calculator. Within 130 feet landward of the highest astronomical tide, the project site currently contains approximately 299,534 square feet of degraded riparian habitat, including steeply sloped banks partially covered with concrete and anthropogenic debris. Post-construction, this area will include gently graded slopes more conducive to supporting fish and wildlife habitat functions, given the removal of concrete and anthropogenic debris, flattened slopes, and the on-site mitigation with planted native shrub vegetation. As a result, riparian habitat quality will be

increased by 64 percent, from an initial weighted average habitat value of 0.08 to a post-construction value of 0.14. To further quantify the nearshore habitat, the nearshore calculator expresses the functional loss or gain of ecosystem services in terms of discounted service area years (DSAYs). The nearshore calculator indicates the post-construction conditions, including proposed shoreline mitigation, generate 34.72 DSAYs. Given the net positive DSAYs, the on-site mitigation is considered sufficient mitigation for the project's aquatic and shoreline impacts.

The goals of the wetland creation/restoration element are to create/restore estuarine wetland as compensatory mitigation for permanent impacts on estuarine wetlands; to provide a net improvement in wetland functions on the site, particularly through increasing available estuarine wetland habitat including for great blue heron foraging; and to provide permanent protection of the wetland mitigation area through fencing and signs. Additional project benefits will include an expansion of juvenile salmonid rearing habitat and an expansion of designated critical habitat for Puget Sound evolutionarily significant unit (ESU) Chinook salmon and Coastal-Puget Sound distinct population segment (DPS) bull trout.

Mitigation Monitoring

A Habitat Maintenance Plan was included in the Draft Cleanup Action Plan (Ecology 2020). The maintenance plan describes the initial 3-year maintenance requirements that have been developed to ensure that newly planted vegetation becomes established and is not out-competed by invasive species or destroyed by herbivores. The maintenance plan and its implementation is a key factor for establishment of the vegetation. The proposed methods, minimum frequency, and duration of maintenance activities (including long-term maintenance) required for the following activities (watering, mulching, weeding, tree removal, dead shrub removal, and debris removal) were provided in the plan. The long-term maintenance component of the plan describes the maintenance activities that will be conducted after the initial 3-year maintenance period, including seasonal mowing and removal of invasive plants.

For projects that include pile driving

If steel or concrete piles are being installed with an impact hammer pile driver, marbled murrelets may be adversely impacted. For installation of any type of pile with a vibratory pile driver, marine mammals may be adversely impacted. A monitoring plan may be required to ensure protection of these species.

No pile driving activities are anticipated as part of the project.

Please fill out the following: (obtain information from contractor)	
5.1 Number of piles being replaced:	None
5.2 Replacement pile type: (e.g.: ACZA-treated wood, steel, coating used on steel piles)	
5.3 Replacement pile size: (e.g. 12-inch)	
5.4 Installation method: (e.g.: vibratory, impact hammer)	**Note:** Vibratory or impact installation of wood, concrete, plastic, or other non-metal piles of any size is allowed. Impact installation of steel piles in marine waters is not covered under the programmatic and, in freshwater, is only covered programmatically for steel piles up to 10 inches.
5.5 Anticipated dates, number of minutes and number of days vibratory pile driving	_____ minutes per day _____ number of days Anticipated dates:
5.6 For vibratory installation, will proofing be required? If so, how many pile strikes per pile?	Yes _____ Number of pile strikes per pile _____ No _____
5.7 For impact hammer installation, estimate the number of pile strikes required per pile:	
5.8 For impact hammer installation or proofing, estimated number of pile strikes per day:	Minutes per day _____ Number of days _____ Anticipated dates:
5.9 For impact hammer pile driving or proofing, sound attenuation measures:	
5.10 Anticipated dates, number of minutes and number of days of impact hammer pile driving or proofing:	
5.11 Describe substrate into which piling will be driven:	

6. Construction Techniques:
Describe methods and timing of construction to be employed in building the project and any associated features. Identify actions that could affect listed / proposed species or designated / proposed critical habitat and describe in sufficient detail to allow an assessment of potential impacts. Consider actions such as vegetation removal, temporary or permanent elevations in noise level, channel modifications, hydrological or hydraulic alterations, access roads, power lines etc. Also discuss construction techniques associated with any interdependent or interrelated projects.
Address the following:

A. Construction sequencing and timing of each stage (duration and dates):

The construction will be phased in order to minimize the amount of land disturbing activity occurring at the same time and shall take into account seasonal work limitations and tides. The sequence of construction is:

- Mobilization and site setup,
- Site clearing (brush and trees),
- Capping utilities and demolition of structures on site,

- Installation of a temporary groundwater treatment system,
- Installation of temporary erosion control measures,
- Excavation of landfill refuse and regrading, including shoreline regrading and mounding in the central landfill area,
- Grading the landfill to the design contours,
- Installation of the LFG venting system,
- Installation of the cap system, including the GCLL and topsoil on the surface,
- Site hydroseeding,
- Planting vegetation on the shoreline plant installation,
- Construction of the perimeter road,
- Installation of the perimeter security fence, and
- Demobilization.

Work activities along the shoreline will be conducted during daylight hours during very low tides, which occur only during May through August. The shoreline excavation will be conducted in strips perpendicular to the shoreline. The width of the strips will be such that the segment is excavated, graded, and the modified bentonite clay GCLL with polymer is placed during one tide cycle. Placement of the cap cover soil layers above the modified bentonite clay GCLL with polymer will follow during the next low tide cycle. The segment width will likely be around 50 feet wide along the approximately 1,500 linear feet of the shoreline. The shoreline excavation and cap construction will be complete within approximately three months. The actual width, timing, and sequencing will be determined in cooperation with the selected contractor.

Work activities in the remaining portion of the project site, beyond the shoreline areas, will be conducted after the shoreline excavation and cap construction is completed. Based on the above sequencing of construction activities, work will span approximately five months, with the actual schedule depending on agency-approved work windows.

B. Site preparation:

Site preparation consists of installing erosion and stormwater control BMPs in areas where excavation, demolition, grading and other ground-disturbing activities are proposed for construction. Vegetation removal will occur across the entire landfill surface and extend out to the limit of solid waste in the lagoon. Much of the landfill surface is vegetated with non-native invasive species such as Himalayan blackberry (*Rubus armeniacus*), Scotch broom (*Cytisus scoparius*), and teasel (*Dipsacus fullonum*), which will be removed during demolition and grading activities. Native vegetation on the project site is generally restricted to patchy areas near the railway, along the eastern edge of the landfill/shoreline, and along the southern edge of the landfill and drainage ditch on the southern site boundary. Native species observed include primarily red alder, big-leaf maple, Douglas-fir, salmonberry, nettle, and sword fern.

C. Equipment to be used:

Equipment used for construction activities will include typical heavy construction equipment such as excavators, dozers, dump trucks, and trailers. Work will be conducted from the upland at low tide when

the work can be conducted "in the dry." The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will be always on land and will excavate when the tide is below the edge of the excavation.

D. Construction materials to be used:

Recycled concrete debris from on-site slabs and foundations may potentially be re-used. Clean fill material and wood waste will be used to fill in excavated areas of the project site. A GCLL cap will be placed, along with an LFG collection and venting system. Sand, crushed rock, cover soil, and topsoil will be placed over the GCLL.

E. Work corridor:

Activities will occur within the approximate extent of solid waste as shown on Sheet 2. The site is bounded by South March Point Road to the south, the BNSF railroad causeway and Padilla Bay inner lagoon to the north and northeast, and the Swinomish Indian Reservation to the east and southeast. Work below mean higher high water (MHHW) is limited to the area of the excavation along the shoreline.

F. Staging areas and equipment wash outs:

Staging areas and equipment washouts will be located on site and will be used to the extent necessary for the project to maintain a clean site and to prevent track-out from construction equipment onto South March Point Road. All equipment that comes into contact with site soils will be washed prior to leaving the project site to reduce the potential of contaminated soils being transported off site.

G. Stockpiling areas:

Stockpile areas for construction materials will be located on site and protected from erosion to prevent sediment-laden waters from leaving the project site.

H. Running of equipment during construction:

Construction equipment will primarily be in operation during weekday daytime hours; however, work during weekends may be required depending on schedule constraints associated with periods of low tide when working below MHHW. Noise generated by construction equipment is not anticipated to be elevated above ambient noise levels from surrounding industrial activities. In addition, construction activities will incorporate noise control recommendations identified in the Heron Management Plan.

I. Soil stabilization needs / techniques:

To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted "in the dry" at low tide to reduce the potential impacts on water and aquatic biota from turbidity and potentially contaminated soil. Covering exposed shoreline bank soils with temporary cover between tide cycles will further reduce the potential for a release of any contaminated material to the lagoon.

Prevention of on-site erosion will include stabilizing all exposed and unworked soils, including stockpiles. During construction, no soils will remain exposed for more than seven days. Soils will be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast. Soil stockpiles will be stabilized to reduce erosion, protected with sediment trapping measures, and be located away from

storm drain inlets, waterways, and drainage channels. Before the completion of the project, permanent stabilization of all exposed soils that have been disturbed during construction will be conducted. Some examples of BMPs to use to stabilize soils, including stockpiles, are compost blankets, seeding and mulching, or matting/rolled erosion control products. Compost blankets can be used as temporary erosion control and then be mixed into the soil to help meet the post construction soil requirements.

J. Clean-up and re-vegetation:

Any excess soil from excavation activities will be tested for pollutants and properly disposed of if required. The surface vegetation (trees, shrubs, and bushes) on site will be removed and recycled off site for compost. The possibility of chipping the trees and using the chips on the final surface of the landfill will be evaluated during the design. The remainder of the vegetation currently is not being considered for reuse on site due to the presence and likely re-introduction of noxious weeds (e.g. blackberry) to the new landfill cap.

The existing shoreline will be regraded to a 5H:1V slope and constructed with a multi-layer cap system. The upper 18 inches of the cap will be able to sustain vegetation growth. The vegetation that will be selected will include a variety of native shrubs; however, trees will not be planted to avoid having root systems that could penetrate the cover soils and possibly damage the GCLL. A temporary watering system may be installed to provide supplemental water for the plantings. Approximately 1.72 acres of habitat which includes the "shrub riparian area" and area between "pre- and post- construction area HTL" as defined on Sheet 5 will be created and/or restored upon completion of the project. See the Habitat Mitigation section in Section 5, Description of Work, in this document for additional information on the proposed revegetation activities at the project site.

K. Stormwater controls / management:

Stormwater controls and management are described above in Section 5 of this document in more detail. The work will be conducted primarily during the dry summer season. While most of the stormwater that does not evaporate is expected to infiltrate into the porous sediment that is located on site, there will be two 20,000-gallon settlement tanks set up on site to store the water and allow for suspended soils to settle out. Additionally, two post-treatment tanks will be set up to hold the treated water for testing and analysis prior to discharge to a publicly owned treatment works.

To prevent erosion and soil transport from the project site, all drainage water from disturbed areas will be passed through a sediment trap or other appropriate sediment removal BMP before discharging from the site. Controls intended to stabilize soil on site will be constructed as one of the first steps in grading and will be functional before other ground-disturbing activities take place. A Stormwater Pollution Prevention Plan will be developed by the contractor for the project that will include the use of BMPs to prevent the transport of soil from the project site, such as compost stocks, berms or blankets, filter fence, straw wattles, containment berms, brush barrier, gravel filter berm, a sediment pond, or sediment traps. Sandbags also may be utilized to prevent sediment from being discharged off site.

L. Source location of any fill used:

The source of all import material will be approved by Ecology prior to the material being brought to the project site.

M. Location of any spoil disposal:

During the waste excavation and handling, any potentially regulated waste that is identified (e.g., car batteries) will be set aside with a "waste pending analysis" label, profiled, and shipped off site to an appropriate recycling or disposal facility.

7. Action Area

Please describe the action area. The action area means all areas to be affected directly (e.g., earth moving, vegetation removal, construction noise, placement of fill, release of environmental contaminants) and indirectly by the proposed action. (Example: as a direct effect, the action area for pile driving would include the area out to where the noise from the pile driving falls below the level of harm or disturbance for listed species. For vibratory hammer pile driving impacts to killer whales, this level is 120 dB. Action area will include any area where the underwater noise level may exceed 120 dB).

The action area is defined as the geographic area encompassing all of the physical, chemical, and biological changes that will occur directly or indirectly from the proposed project. Consideration of geographic project footprint, noise, and potential turbidity is necessary to determine the extent of the action area.

Construction activity below MHHW may temporarily resuspend sediments in the water column. However, work below MHHW will be conducted during daylight hours during very low tides, which occur only during May through August. Some minor turbidity also may occur when disturbed soils in the project footprint below MHHW are inundated during high tides. Working at low tide has been shown to be very effective at limiting suspension of potentially contaminated sediment without the placement of an interim cover over the excavation face between tide cycles; however, for an additional level of protection, a layer of sacrificial fill material or geotextile fabric will be placed at the end of every tide cycle over any exposed soils.

Noise will be generated by construction equipment and work activities, but in-air and in-water noise is not anticipated to exceed the existing ambient noise levels. The action area is zoned as "Heavy Manufacturing" and designated as Urban shoreline (City of Anacortes 2010). Adjacent land uses include the BNSF railway along the north project boundary and commercial steel fabrication facility at the T. Bailey property west of South March Point Road and the project site. The area southeast of the landfill is owned by the Swinomish Indian Tribal Community and has been developed as a light industrial/commercial area. Additionally, the Swinomish channel nearby is used by frequent recreational and fishing boats. As a result, noise disturbance is typical and expected, including elevated in-air and in-water noise from vehicle, train, and boat traffic, and nearby industrial activity.

Based on these considerations, the action area has been defined based on the extent of direct and indirect effects from the main activity of construction noise, construction below MHHW, and water quality impacts from operations of the proposed action after construction is complete. This action area includes both the areas affected by these direct and indirect effects as well as the immediate project footprint, which is consists of the project site and portions of the Padilla Bay inner lagoon shoreline along the northeast portion of the landfill.

WAC 173-201A establishes turbidity compliance criteria for in-water construction activities that result in disturbance of in place sediments. For marine waters, the point of compliance is typically 150 feet from the activity. Based on this point of compliance, a conservative project footprint can be established, based on a potential worst-case dispersion of turbidity during limited in-water work and during tidal cycles when disturbed soils in the project footprint below MHHW are inundated, although it is expected that any

turbidity increases would rapidly dissipate. Thus, a conservative boundary of the potential turbidity effect will be defined as three times the mixing zone, at 450 feet. The action area will therefore include the 450-foot radius around the location of work below MHHW on the south side of the BNSF causeway, as well as the extent of solid waste, which is the action area of all other upland site development work, as shown in Sheet 6.

The Padilla Bay lagoon is also included as part of the action area due to indirect effects from stormwater discharge once construction is complete. The lagoon will receive waters from the landfill both directly from the waterward side of the landfill and via the perimeter ditch on the landward side of the landfill. Stormwater infiltration through the landfill will be minimized or eliminated by the proposed landfill cover system, minimizing the formation of leachate that currently seeps out of the landfill that may enter the lagoon. While water quality improvements are anticipated, due to these potential indirect effects, the Padilla Bay inner lagoon south of the BNSF causeway is included in the action area. Given that the embankment under the railroad serves as a dike separating the inner lagoon from Padilla Bay, the action area does not extend beyond the BNSF causeway north of the landfill.

8. Species Information:

Identify each listed or proposed species, including terrestrial species, as well as designated or proposed critical habitat in the action area. Please include information on which listed species use are expected to be found in the action area and the potential for them to be there during project activities.

Endangered Species Act (ESA)-listed species and critical habitats fall under the jurisdiction of one of two federal agencies: NOAA Fisheries or the U.S. Fish and Wildlife Service (USFWS). A list of the listed or proposed species and designated or proposed critical habitat for the action area was obtained from the USFWS Information for Planning and Consultation (USFWS 2021a). NOAA Fisheries identifies ESA-listed species that occur or may occur within a broad geographic area, such as an ESU or a DPS, as opposed to a project-specific location (NOAA Fisheries 2021). The August 2021 status of federally listed species and/or critical habitats protected under the ESA that occur or may occur within the proposed action area is presented in Table 1. There are five ESA-listed species identified by the USFWS and NOAA Fisheries that do not occur in Padilla Bay or the vicinity of the action area and do not provide potential habitat based on the species' life history and habitat requirements; these species are identified in Table 2.

Additionally, Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS) database (WDFW 2021a) and Salmonscape (WDFW 2021b) mapper were consulted to further determine fish species that may occur within the action area.

Table 1: Species and Critical Habitat That May Occur in the Action Area

Common Name	Listing Status[1]	Agency	Critical Habitat[1]
Coastal-Puget Sound Bull Trout (*Salvelinus confluentus*)	Threatened (Puget Sound DPS)	USFWS	Designated; within the action area
Puget Sound Chinook Salmon (*Oncorhynchus tshawytscha*)	Threatened (Puget Sound ESU)	NOAA Fisheries	Designated; within the action area

Note(s)

1. ESA Listing status and critical habitat obtained from USFWS (2021a) and NOAA Fisheries (2021).

Abbreviations

DPS = distinct population segment
ESA = Endangered Species Act
ESU = evolutionarily significant unit
NOAA = National Oceanic and Atmospheric Administration
USFWS = U.S. Fish and Wildlife Service

Table 2: Species and Critical Habitat That Do Not Occur in the Action Area

Common Name	Listing Status[1]	Agency	Critical Habitat[1]
Gray Wolf (*Canis lupus*)	Proposed Endangered	USFWS	None
Streaked Horned Lark (*Eremohila alpestris strigata*)	Threatened	USFWS	Designated; outside of the action area
Marbled Murrelet (*Brachyrampus marmoratus*)	Threatened	USFWS	Designated; outside of the action area
Yellow-billed Cuckoo (*Coccyzus americanus*)	Threatened	USFWS	Designated; outside of the action area
Golden Paintbrush (*Castilleja levisecta*)	Threatened	USFWS	None

Note(s)
1. ESA Listing status and critical habitat obtained from USFWS (2021a) and NOAA Fisheries (2021).

Abbreviations
ESA = Endangered Species Act
NOAA = National Oceanic and Atmospheric Administration
USFWS = U.S. Fish and Wildlife Service

As shown in Table 1, two ESA-listed species (Coastal-Puget Sound Bull trout [*Salvelinus confluentus*] and Puget Sound Chinook salmon [*Oncorhynchus tshawytscha*]) occur or may occur within the action area. Designated critical habitat for both species is also present within the action area. No ESA-listed plant Table 1 or insect species are identified as potentially occurring within the action area.

Both species presented in Table 1 are documented and known to occur in Padilla Bay. Both Chinook salmon and bull trout are likely to occur within the relatively shallow water of the Padilla Bay. Additionally, Padilla Bay is designated critical habitat for Chinook salmon and bull trout.

As identified in Table 2, five ESA-listed species are not addressed in this biological evaluation due to the location of the project. Specific reasons for not includes these species in this biological evaluation analysis are as follows:

- ***Gray wolf***: The action area is outside of known pack or pack use areas for gray wolves (USFWS 2021b, WDFW et al. 2019). Therefore, no effects on gray wolves are expected to occur from project activities.
- ***Streaked Horned Lark:*** The streaked horned lark's distribution is limited to areas in the South Puget Lowlands in Washington, the Pacific Coast and Lower Columbia River in Washington and Oregon, and the Willamette Valley in Oregon (USFWS 2019). Potential habitat for streaked horn lark is not located within the project action area. Therefore, no effects on streaked horned lark are expected to occur from project activities.
- ***Marbled Murrelet:*** Marbled murrelet critical habitat only occurs in old growth forests, not in the lower reaches of rivers, estuaries, or marine areas. Thus, they are not expected to occur within the action area. The WDFW PHS database records no species occurrence for marbled murrelets in or near the project action area (WDFW 2021a). The nearest marbled murrelet critical habitat areas to Padilla Bay are located approximately 50 miles away in the North Cascades National Park (61 Federal Register 26257). Additionally, while marbled murrelet food sources include forage fish, and there is no known

forage fish spawning within the action area. Work will occur after dawn and before dusk, so there are no potential effects on birds travelling to nesting habitat. Therefore, no effects on marbled murrelets are expected to occur from project activities.

- ***Yellow-billed Cuckoo:*** Just 20 sightings of yellow-billed cuckoos have been documented in Washington since the 1950s, with 19 occurring from 1974 to 2016 at an average rate of one sighting every 2.3 years. Sixteen of the 20 records occurred in eastern Washington (Wiles and Kalasz 2017). No potential habitat for yellow-billed cuckoo is located within the project action area. Therefore, no effects on yellow-billed cuckoo are expected to occur from project activities.
- ***Golden paintbrush:*** Golden paintbrush does not tolerate shade from nearby trees, shrubs, or even tall non-native grasses. This species is considered extirpated in most areas and only eleven known populations are currently known to exist in Washington and British Columbia, none of which occur in Skagit County (USFWS 2021c). Therefore, no effects on golden paintbrush are expected to occur from project activities.

To determine what listed or proposed species may occur in the action area, contact NOAA Fisheries at the address listed below and obtain a county list of federally listed/ designated and proposed species and critical habitat from the:

U.S Fish and Wildlife Service (USFWS): The USFWS Information for Planning and Consultation (IPaC) online data query was used.

National Marine Fisheries Service (NOAA Fisheries): The NOAA Fisheries Endangered Species Act (ESA) Threatened and Endangered species list was used, via the website: https://www.fisheries.noaa.gov/species-directory/threatened-endangered?title=&species_category=any&species_status=any&regions=1000001126&items_per_page=all&sort=

The following species are listed (USFWS and NOAA Fisheries) or candidates for listing (USFWS) as of August 17, 2021:

USFWS SPECIES – IPaC for the Project Vicinity:

BIRDS
Marbled murrelet
Streaked horned lark
Yellow-billed cuckoo

MAMMALS
None listed for site vicinity

INSECTS
Monarch butterfly

PLANTS
Golden paintbrush

FISH
Bull trout, coastal-Puget Sound
Dolly varden, coastal-Puget Sound

NATIONAL MARINE FISHERIES SERVICE SPECIES:

FISH
Chum, Columbia River
Chum, Hood Canal summer
Chinook, lower Columbia River
Chinook, upper Columbia River spring
Chinook, Puget Sound
Chinook, Snake River fall
Chinook, Snake River spring-summer
Chinook, upper Willamette River
Coho, lower Columbia River
Sockeye, Ozette Lake
Sockeye, Snake River
Steelhead, upper Columbia River
Steelhead, middle Columbia River
Steelhead, lower Columbia River
Steelhead, Snake River
Steelhead, upper Willamette River
Steelhead, Puget Sound
Sturgeon, Green (southern DPS)
Eulachon, Pacific (southern DPS)
Bocaccio (Georgia Basin DPS)
Rockfish, yelloweye (Georgia Basin DPS)
Rockfish, yelloweye (Georgia Basin DPS)

MARINE MAMMALS
Humpback whale
Blue whale
Fin whale
Sei whale
Sperm whale
Southern resident killer whale

REPTILES-AMPHIBIANS
Leatherback sea turtle
Loggerhead sea turtle
Green sea turtle
Olive Ridley sea turtle

9. Existing Environmental Conditions:

Describe existing environmental conditions for the following:

A. Shoreline riparian vegetation and habitat features

The project site has been significantly modified in the past, both by landfill development and expansion over time, as well as installation of paved roads, the railway, and industrial practices on adjacent properties. The current shoreline environment along the Padilla Bay inner lagoon consists partially of concrete and anthropogenic debris along the shoreline; invasive non-native plants including Himalayan blackberry, Scotch broom, and teasel; and very little native vegetation. Vegetation above MMHW is limited to the top of the armored shoreline and includes non-native invasive species such as Himalayan blackberry, Scotch broom, teasel, and various upland herbaceous weedy species. Native vegetation on the project site is generally restricted to patchy areas near the BNSF railway embankment, along the eastern edge of the landfill/shoreline, and along the southern edge of the landfill and drainage ditch on the southern project site boundary. Native species observed include primarily red alder (*Alnus rubra*), cottonwood (*Populus trichocarpa*), Western red cedar (*Thuja picata*), Douglas fir (*Psuedotsuga menziesii*),

and big-leaf maple (*Acer macrophyllum*), salmonberry (*Rubus spectabilis*), nettle (*Urtica dioica*), and sword fern (*Polystichum munitum*).

Vegetation below mean high tide is limited by the bottom of the armored shoreline and includes native saltmarsh species including saltmarsh bulrush (*Schoenoplectus maritimus*) and seaside arrowgrass (*Triglochin maritima*). Additionally, there are large mudflat areas that contain no vegetation.

Two wetlands are located on the project site (Sheet 2). Wetland A (an estuarine wetland) is located along the Padilla Bay inner lagoon, and is dominated by saltmarsh bulrush and seaside arrowgrass. Wetland B is a palustrine emergent wetland associated with the northern portion of the ditch that forms the southern boundary of the project site, and is dominated by red alder, cattail, and skunk cabbage. Hydrologic inputs to the ditch where Wetland B is located appear to include stormwater from South March Point Road, culverts, and the project site. The lower (southern) section of the drainage ditch appears to be tidally influenced and to contain salt-tolerant species; this lower section of the drainage ditch was mapped as part of Wetland A, given the apparent tidal influence on hydrology and vegetation.

B. Aquatic substrate and vegetation (include information on the amount and type of eelgrass or macroalgae present at the site)

The project site itself includes limited aquatic areas associated with intertidal salt marsh. According to Bulthuis (2010), the intertidal salt marshes of Padilla Bay are dominated by pickleweed (*Salicornia virginica*), seashore saltgrass (*Distichlis spicata*), arrowgrass (*Triglochin maritumum*), and spear saltbush (*Atriplex patula*). Sparsely distributed eelgrass has been observed in portions of the Padilla Bay lagoon (U.S. Coast Guard 2017) but was not observed on the project site during field reviews in 2021. The Padilla Bay National Estuarine Research Reserve, located north of the project site and north of the BNSF spillway, contains the largest contiguous eelgrass *(Zostera marina* and *Z. japonica*) bed in the contiguous United States (Ecology 2021).

C. Surrounding land/water uses

The landfill is buttressed with concrete and anthropogenic debris along a portion of its saltwater edge to the north, which includes the BNSF right-of-way. The embankment under the railroad serves as a dike separating the inner lagoon from Padilla Bay. A short trestle (approximately 110 feet wide) in the railroad and embankment allows for saltwater exchange between the inner and outer lagoon. State Route 20 runs generally east to west about 800 feet southeast of the site, beyond South March Point Road.

D. Level of development

The area surrounding the landfill includes industrial and commercial development to the west and east, undeveloped forested parcels to the south, and Padilla Bay and the Swinomish Channel to the north. The area southeast of the landfill is owned by the Swinomish Indian Tribal Community and has been developed as light industrial/commercial area. East of the site is a trucking company, a gift shop, fireworks stands, and further east the Swinomish Indian Tribe hotel and casino. To the west of the site is an industrial tank fabrication company. South of the site and adjacent to the industrial tank fabrication company is a heron nesting colony, referred to as the March Point Heronry.

E. Water quality

The outer portion of the lagoon is listed as Category 5 for sediment PCBs and Category 2 for pH and dissolved oxygen in water. Padilla Bay Inner is listed on the Ecology's 303(d) List for the parameters identified in Table 3.

Table 3: Padilla Bay 303(d) Listing

Parameter	Medium	Category
Bacteria	Water	5
Benzo(a)anthracene	Tissue	5
Chrysene	Tissue	5
2,3,7,8-TCDD (Dioxin)	Tissue	5
Copper	Water	5
1,2-Dichlorobenzene	Sediment	5
1,4-Dichlorobenzene	Sediment	5
1,2,4-Trichlorobenzene	Sediment	5
Anthracene	Sediment	5
Arsenic	Sediment	5
2,4-Dimethylphenol	Sediment	5
2-Methylnaphthalene	Sediment	5
2-Methylphenol	Sediment	5
4-Methylphenol	Sediment	5
Acenaphthene	Sediment	5
Acenaphthylene	Sediment	5
Benzo(a)pyrene	Sediment	5
Benzo(g,h,i)perylene	Sediment	5
Benzofluoranthenes, Total (b+k+j)	Sediment	5
Benzoic Acid	Sediment	5
Benzyl Alcohol	Sediment	5
Bis(2-Ethylhexyl)phthalate	Sediment	5
Butyl benzyl phthalate	Sediment	5
Cadmium	Sediment	5

Parameter	Medium	Category
Chromium	Sediment	5
Dibenzo(a,h)anthracene	Sediment	5
Dibenzofuran	Sediment	5
Diethyl phthalate	Sediment	5
Dimethyl phthalate	Sediment	5
Di-n-butyl phthalate	Sediment	5
Di-n-Octyl phthalate	Sediment	5
Fluoranthene	Sediment	5
Fluorene	Sediment	5
Hexachlorobenzene	Sediment	5
Hexachlorobutadiene	Sediment	5
High Molecular Weight Polycyclic Aromatic Hydrocarbons (HPAH)	Sediment	5
Indeno(1,2,3-c,d)pyrene	Sediment	5
Lead	Sediment	5
Low Molecular Weight Polycyclic Aromatic Hydrocarbons (LPAH)	Sediment	5
Mercury	Sediment	5
Naphthalene	Sediment	5
N-Nitrosodiphenylamine	Sediment	5
Pentachlorophenol	Sediment	5
Phenanthrene	Sediment	5
Phenol	Sediment	5
Pyrene	Sediment	5
Silver	Sediment	5
Zinc	Sediment	5

Note(s)

1. Source: https://apps.ecology.wa.gov/ApprovedWQA/ApprovedPages/ApprovedSearch.aspx.

F. Describe use of the action area by listed salmonid fish species.

Chinook salmon

Puget Sound ESU Chinook salmon have been documented to use Padilla Bay as an important migration route (Padilla Bay NERR 2008). Migrating juvenile salmon spend varying lengths of time in estuaries and eelgrass beds before moving to the North Pacific. In addition, once juvenile salmon migrate out of rivers and into estuaries, they spend time in brackish water searching out areas of appropriate salinity as they adapt to the marine environment. They use the nearshore and shallow areas to obtain food before they venture to deeper water. While there is no spawning habitat within Padilla Bay or the nearby Swinomish Channel, adult anadromous salmonids returning to the Skagit River use the Swinomish Channel as a migratory corridor, and the channel also provides rearing, foraging, and refugia habitat for out-migrating juvenile salmonids. (WDFW 2021b).

Bull trout

Historically, Bull trout have directly used the nearby Swinomish Channel and indirectly used the "artificial pocket estuary" habitat along Swinomish Channel (Beamer et al. 2004). However, Bull trout stocks are also very dependent on the freshwater environments, as they reproduce only in clean, cold, relatively pristine streams. Within a given stock, some adults remain in freshwater their entire lives, while others migrate to the estuary where they stay during the spring and summer. They then return upstream to spawn in late summer. In 2006, a study captured 15 bull trout in the Swinomish Channel; therefore, it is possible that bull trout use nearby Padilla Bay when they out-migrate from the Skagit River (Hayes et al. 2011).

G. Is the project located within designated / proposed bull trout or Pacific salmon critical habitat? If so, please address the proposed projects' potential direct and indirect effect to primary constituent elements (Critical habitat templates can be found on the Corps website at: http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx, select Forms, Tools and References; Forms and Templates; Critical Habitat Assessment Forms.

Critical habitat in the action area has been designated for the Puget Sound ESU of Chinook salmon and Coastal Puget Sound DPS of bull trout. Tables 4 and 5 summarize the potential effects of the project on Chinook salmon and bull trout primary constituent elements (PCEs).

The PCEs for bull trout that are present within the action area include PCEs 3, 4, and 8, as discussed in Table 4. The Padilla Bay inner lagoon, part of the action area, does not serve as a migratory corridor for transient subadult and adult bull trout. The site is located in a heavily industrialized area and includes shoreline debris (concrete and anthropogenic debris), poor riparian vegetation conditions, and lack of complex shoreline habitat. The proposed project will result in temporary disturbance below MHHW and may result in temporary, localized turbidity increases when disturbed soils in the project footprint below MHHW are inundated during high tides. No channel bottom substrate disturbance or disturbance of benthic and epibenthic prey will occur. No measurable long-term effects on the above-mentioned PCEs will result from the project.

Table 4: Potential Project Effects on Bull Trout Primary Constituent Elements

Bull Trout PCEs	PCE Present	Potential Project Effects
1) Springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia.	Not Present	NA
2) Migration habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent, or seasonal barriers.	Not Present	NA
3) An abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish.	Present	The proposed project will result in temporary disturbance below MHHW. No channel bottom substrate disturbance or disturbance of benthic and epibenthic prey will occur. Forage fish spawning habitat is not located within the project footprint. No long-term modifications of prey species habitats are expected.
4) Complex river, stream, lake, reservoir, and marine shoreline aquatic environments, and processes that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.	Present	Baseline conditions (concrete and anthropogenic debris along the shoreline) do not provide complex marine shoreline habitat.
5) Water temperatures ranging from 2 to 15 °C (36 to 59 °F), with adequate thermal refugia available for temperatures that exceed the upper end of this range. Specific temperatures within this range will depend on bull trout life-history stage and form; geography; elevation; diurnal and seasonal variation; shading, such as that provided by riparian habitat; streamflow; and local groundwater influence.	Not Present	NA
6) In spawning and rearing areas, substrate of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable to bull trout will likely vary from system to system.	Not Present	NA

Bull Trout PCEs	PCE Present	Potential Project Effects
7) A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, minimal flow departure from a natural hydrograph.	Not Present	NA
8) Sufficient water quality and quantity such that normal reproduction, growth and survival are not inhibited.	Present	The proposed project will result in temporary disturbance below MHHW and may result in temporary, localized turbidity increases when disturbed soils in the project footprint below MHHW are inundated during high tides. Long-term effects on water quality that may result from the project include improved water quality being discharged from the site due to the removal of contaminated sediments and the installation of a GCLL barrier.
9) Sufficiently low levels of occurrence of non-native predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from Bull trout.	Not Present	NA

Abbreviations:
°C = degrees Celsius
°F = degrees Fahrenheit
GCLL = geosynthetic clay laminated liner
MHHW = mean higher high water
NA = not applicable
PCE = primary constituent element

Nearshore marine areas in Puget Sound are designated as critical habitat for Chinook salmon (70 FR 52630). There are six PCEs identified for Chinook salmon critical habitat (Table 5). Freshwater-specific PCEs for Chinook salmon are not present in the action area (i.e., PCEs 1, 2, and 3). The action area is limited to habitat as identified in PCE 4 and 5. Water conditions, including water temperature in the Padilla Bay inner lagoon, does not pose a problem for Chinook use. However, the action area is within a developed area of the marine shoreline, and therefore provides limited suitable habitat for Chinook salmon. Work below MHHW will be performed during low tide above the water line to avoid in-water work. Some minor turbidity may occur when disturbed soils in the project footprint below MHHW are inundated during high tides. No measurable long-term effects on the above-mentioned PCEs will result from the project.

Table 5: Potential Project Effects on Chinook Salmon Primary Constituent Elements

Chinook Salmon PCEs	PCE Present	Potential Project Effects
1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation and larval development.	Not Present	NA
2) Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility, water quality and forage supporting juvenile development; and natural cover such shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels and undercut banks.	Not Present	NA
3) Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover, such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.	Not Present	NA
4) Estuarine areas free of obstruction with water quality, water quantity and salinity conditions supporting juvenile and adult physiological transitions between fresh and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.	Present	Work below MHHW will occur during low tides above the water line to avoid in-water. Work below MHHW will occur during very low tides and shoreline-based excavation equipment will always be on land and will excavate only when the tide is below the edge of the excavation. Some minor turbidity could occur when disturbed soils in the project footprint below MHHW are inundated during high tides. Long-term effects on water quality that may result from the project include improved water quality being discharged from the site due to the removal of contaminated sediments and the installation of a GCLL barrier.
5) Nearshore marine areas free of obstruction with water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.	Present	In addition to the information provided in PCE 4, proposed work below MHHW is limited to the shoreline and does not include the channel bottom or the removal of any natural cover. Proposed construction will not result in loss of habitat features.

Chinook Salmon PCEs	PCE Present	Potential Project Effects
6) Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.	Not Present	NA

Abbreviations:
GCLL = geosynthetic clay laminated liner
MHHW = mean higher high water
NA = not applicable
PCE = primary constituent element

H. Describe use of the action area by other listed fish species (*green sturgeon, eulachon, bocaccio, canary rockfish and yelloweye rockfish)*.

No other listed fish species occur within the action area, as discussed in Section 8 of this document.

I. Is the project located within designated/proposed critical habitat for any of the species listed below? If so please address the proposed projects' potential direct and indirect effect to primary constituent elements. Please see the NOAA-Fisheries and US Fish and Wildlife websites (www.nwr.noaa.gov and www.fws.gov/pacific respectively) for further information.

Southern resident killer whale	*Marbled murrelet*
Northern spotted owl	*Western snowy plover*
Green sturgeon	*Eulachon*

No other listed species or their designated/proposed critical habitats occur within the action area; see Section 8 of this document for additional information.

J. Describe use of action area by marbled murrelets. How far to the nearest marbled murrelet nest site or critical habitat? Some information is available on the Fish and Wildlife Service website: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08C.

The project is located in an urban-industrial environment that does not include suitable nesting habitat for marbled murrelets. The WDFW PHS database records no species occurrence for marbled murrelets in or near the action area (WDFW 2021a). The nearest marbled murrelet critical habitat areas to Padilla Bay are located approximately 50 miles away in the North Cascades National Park (61 FR 26257). Marbled murrelets may forage in the nearby Padilla Bay, but forage fish are not known to spawn within the action area.

K. **Describe use of action area by the spotted owl. How far to the nearest spotted owl nest site or critical habitat? Some information is available on the Fish and Wildlife Service website: http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B08B.**

The project is located in an urban-industrial environment that does not include suitable nesting and/or foraging habitat for northern spotted owl. The WDFW PHS maps do not document northern spotted owl in the vicinity of the action area (WDFW 2021a). According to USFWS critical habitat maps (USFWS 2012), the nearest critical habitat for northern spotted owl is located in the Cascade Mountains or on the Olympic Peninsula.

L. For marine areas only: Describe use of action area by Southern Resident killer whales. How often have they been seen in the area and during what months of the year? For information on noise impacts on killer whales and other marine mammals, please see the National Marine Fisheries website: http://www.nwr.noaa.gov/Marine-Mammals/MM-consults.cfm.

The project is located in an urban-industrial environment that does not include suitable habitat for Southern Resident killer whales. The WDFW PHS maps do not document Southern Resident killer whales in the vicinity of the action area (WDFW 2021a). Southern Resident killer whale critical habitat consists of marine waters between 20 and 656.2 feet in depth (86 FR 41668). The project will occur on the south side of the BNSF tracks and at approximately high tide level (10.27 feet MLLW), which is not considered to be Southern Resident killer whale habitat.

M. **For marine areas and Columbia River:** How far is the nearest steller sea lion haulout site from the action area? Describe their use of the action area. See the National Marine Fisheries website: http://www.nwr.noaa.gov/Marine-Mammals/MM-consults.cfm for information on the steller sea lion and location of their haulout sites.

The Eastern DPS of Steller sea lion was removed from the list of threatened species under the ESA (78 FR 66140) in December 2013.

N. **For marine areas only: Forage Fish Habitat** – only complete this section if the project is in tidal waters.

Check box if Washington Department of Fish and Wildlife (WDFW) documented habitat is present. Go to the WDFW website for this information: http://wdfw.wa.gov/fish/forage/forage.htm, then search for each species under the link to Biology, then the link to Documented Spawning Grounds (if available, please attach a copy of the Hydraulic Project Approval from WDFW):

Surf Smelt: ☐ **Pacific Herring:** ☐ **Sand Lance:** ☐

Check box if the proposed action will occur in potentially suitable forage fish spawning habitat:

Surf Smelt: ☐ **Pacific Herring:** ☐ **Sand Lance:** ☐

If no boxes are checked, please explain why site is not suitable as forage fish spawning habitat.

No documented habitat for surf smelt, pacific herring, or sand lance is present in the action area (WDFW 2021c). The project footprint is primarily upland habitat and work below MHHW will be limited to the nearby shoreline. Work will be conducted from the upland at low tide when the work can be conducted "in the dry." The work will be conducted during daylight hours and during very low tides, which occur only during May through August. Shoreline-based excavation equipment will be always on land and will excavate only when the tide is below the edge of the excavation.

Please describe the type of substrate and elevation and presence of aquatic vegetation at the project area. For example:
At +10 to +5 feet above MLLW, there is no aquatic vegetation, the substrate consists of large cobbles.
At +5 to +1 foot above MLLW, there is eelgrass and the substrate consists of fine sand.

From approximately +13 to +9 feet above MLLW, there is no or limited aquatic vegetation present and substrate consists of disturbed shoreline with concrete and anthropogenic debris. In areas, estuarine vegetation exists up to approximately +10 feet above MLLW. Above +10 feet above MLLW, blackberry vegetation is common growing over the concrete and anthropogenic debris.

Below +9 feet MLLW, there is estuarine marsh vegetation and aquatic vegetation, with large mudflat areas devoid of vegetation.

10. Effects Analysis

Describe the direct and indirect effects of the action on the proposed and listed species as well as designated and proposed critical habitat within the action area. Consider the impact to both individuals and the population. Discuss the short-term, construction-related, impacts as well as the long-term and permanent effects.

Direct Impacts

Short-term direct impacts on listed species as a result of the proposed action include temporary disturbance below MHHW, which may result in temporary, localized turbidity increases when disturbed soils in the project footprint below MHHW are inundated during high tides. Permanent direct impacts on aquatic habitat are not anticipated as a result of the project. It is possible, but highly unlikely, that fuel or lubricants from equipment could enter the water. Construction crews must carry oil response cleanup equipment at construction sites and are trained to deploy cleanup booms and materials in the event of a spill. No potential direct impacts on aquatic habitat associated with the upland site development construction activities are identified. Impacts on critical habitat are discussed in Section 9.G of this biological evaluation.

To reduce the potential for release of impacted shoreline bank soils to the adjacent lagoon, work will be conducted from the upland at low tide when the work can be conducted "in the dry." The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will always be on land and will excavate only when the tide is below the edge of the excavation. Working at low tide has been shown to be very effective at limiting suspension of potentially contaminated sediment without the placement of an interim cover over the excavation face between tide cycles; however, for an additional level of protection, a layer of sacrificial fill material or geotextile fabric will be placed at the end of every tide cycle over any exposed soils.

The project will result in temporary short-term impacts from an increase in construction noise. This will be temporary and is not expected to impact the nearby great blue heronry that is adjacent to the site.

Long-term direct impacts include the creation of 0.35 acre of new area that would be tidally influenced (below HTL). At the completion of the landfill regrading and placement of the cap system and topsoil, the HTL elevation will move horizontally toward the upland such that new wetted area of the Padilla Bay inner lagoon will be created because the reshaped shoreline will be topographically flatter than the existing steep shoreline.

Indirect Impacts

Long-term indirect effects on listed species that may result from the project include improved water quality being discharged from the project site due to the newly installed GCLL cap. Other long-term effects will include the removal of concrete, anthropogenic debris, and invasive species from the shoreline, the planting of native plant species, which will result in (1) improved habitat for the wildlife that access the site for foraging and nesting material, including the great blue herons, and (2) improved water quality functions of re-created/restored wetlands on-site. The creation of additional area below HTL would result in long-term indirect effects on aquatic species and their habitats through the creation of improved habitat suitable for natural colonization by marsh plants from the adjacent estuarine marsh.

Effects from Interdependent Activities

Interdependent actions have no independent utility apart from the proposed action. There are no interdependent activities associated with the project, and thus no impacts will occur from interdependent activities.

Effects from Interrelated Activities

Interrelated actions are part of a larger action and though they rely upon that action for their justification, the action could occur as part of another project. For this project, there are no interrelated activities, and thus no impacts will occur from interrelated activities.

11. Conservation measures:

Conservation measures are measures that would reduce or eliminate adverse impacts of the proposed activity (examples: work done during the recommended work window (to avoid times when species are most likely to be in the area), silt curtain, erosion control best management practices, percent grating on a pier to reduce shading impacts).

Proposed Work Window

In-water work windows include timing restrictions mandated by state and federal agencies designed to prevent in-water construction activity during periods of salmonid migration and/or forage fish spawning. There is no forage fish spawning in the action area. The U.S. Army Corps of Engineers in-water work window for Padilla Bay is July 16 to February 15. See https://www.nws.usace.army.mil/Portals/27/docs/regulatory/ESA%20forms%20and%20templates/Marine%20Fish%20Work%20Windows%20(8-14-12).pdf.

Work activities will be conducted from the upland at low tide when the work can be conducted "in the dry." The work will be conducted during daylight hours during very low tides, which occur only during May through August. Shoreline-based excavation equipment will be always on land and will excavate only when the tide is below the edge of the excavation. Working at low tide has been shown to be very successful at limiting suspension of potentially contaminated sediment without the placement of an interim cover over the excavation face; however, for an additional level of protection, a layer of material or geotextile fabric will be placed over any exposed soil at the end of every tide cycle.

Given all activities will be conducted "in the dry," no in-water work activities are proposed and no in-water work window is proposed.

Other Conservation Measures

Conservation measures and BMPs that will be implemented during construction and operation to avoid or minimize impacts on the environment are described in Section 5 of this document.

12. Determination of Effect:

Provide a summary of impacts concluding with statement(s) of effect, by species. Even projects that are intended to benefit the species might have short-term adverse impacts and those must be addressed. Only the following determinations are valid for listed species or designated critical habitat:

No effect. Literally no effect. No probability of any effect. The action is determined to have 'no effect' if there are no proposed or listed salmon and no proposed or designated critical habitat in the action area or downstream from it. This effects determination is the responsibility of the action agency to make and does not require NMFS review.

May Affect, Not Likely to Adversely Affect (NLAA) – Insignificant, discountable, or beneficial effects. The effect level is determined to be 'may affect, not likely to adversely affect' if the proposed action does not have the potential to hinder attainment of relevant properly functioning indicators and has a negligible (extremely low) probability of taking proposed or listed salmon or resulting in the destruction or adverse modification of their habitat. An insignificant effect relates to the size of the impact and should never reach the scale where take occurs. A 'discountable effect' is defined as being so extremely unlikely to occur that a reasonable person cannot detect, measure, or evaluate it. This level of effect requires informal consultation, which consists of NMFS and/or USFWS concurrence with the action agency's determination.

May Affect, Likely to Adversely Affect (LAA) **This form is not appropriate for use with a project that is LAA listed species. Please see the Biological Assessment (BA) template on the Corps website:**
http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=mainpage_ESA

Analysis of Effects on Species

Work below MHHW will be performed during low tide above the water line. Potential effects on the listed species include physical and behavioral impacts from temporary and minor turbidity when disturbed soils in the project footprint below MHHW are inundated during high tides. No underwater noise-producing activity (such as pile driving or removal) is proposed, and no in-air noise above ambient noise levels associated with regular industrial activity is proposed. No potential direct impacts on aquatic habitat associated with upland site development construction activities are identified. Effect determinations for each species and its critical habitat are provided in Table 6 and are based on species and critical habitat occurrence information and project effects presented above.

Table 6: Effect Determinations for Listed Species and Critical Habitats

Common Name	Jurisdiction	Federal Status[1]	Effect Determination	
			Species	Critical Habitat
Coastal-Puget Sound Bull Trout	USFWS	Threatened	NLAA	NLAA
Puget Sound Chinook Salmon	NOAA Fisheries	Threatened	NLAA	NLAA

Notes:
1. ESA Listing status and critical habitat obtained from USFWS (2021a) and NOAA Fisheries (2021).

Abbreviations
ESA = Endangered Species Act
NLAA = Not Likely to Adversely Affect
NOAA = National Oceanic and Atmospheric Administration
USFWS = U.S. Fish and Wildlife Service

Chinook Salmon and Bull Trout

Potential adverse effects on juvenile and adult salmonids and bull trout are expected to be negligible. Based on the guidance and definitions provided above and the previously discussed project effects, the effect determination for these species is that the project **may affect, but is not likely to adversely affect** Puget Sound Chinook salmon and Coastal-Puget bull trout. Justification for these determinations is as follows:

- Turbidity effects (such as direct mortality, gill damage, stress, and behavioral changes) are not generally seen at the potential suspended sediment concentrations generated from disturbed soils below MHHW, particularly over a small area over a short period of time.
- Work below MHHW will be limited to times when the work can be conducted “in the dry,, during daylight hours during very low tides. Shoreline-based excavation equipment will be always on land and will excavate only when the tide is below the edge of the excavation.
- Substrates disturbance below MHHW will occur primarily to the armored shoreline and surrounding substrate, and will be limited to the extent necessary to remove landfill waste. Disturbance to quality habitat and/or impacts on benthic and epibenthic prey items will be limited to the excavation area. No long-term modifications of salmonid prey species habitats are anticipated.

- Short-term and localized impacts on water quality could result in the form of short-term changes in water column turbidity. Direct fish mortality or stress from suspended sediment is not expected to occur, and water quality effects are not expected to be at a level that would affect the abundance of water column prey items. These effects are thus determined to be insignificant.
- No potential direct impacts on aquatic habitat associated with the upland site development construction activities are identified.

Chinook Salmon and Bull Trout Critical Habitat

Based on the guidance and definitions provided above and the previously discussed project effects, the effect determination for critical habitat for these species is that the project **may affect, but is not likely to adversely affect** designated critical habitat for Puget Sound Chinook and Coastal-Puget Sound bull trout. The "may affect, but not likely to adversely affect" determination is appropriate for these species' critical habitat for the following reasons:

- Work below MHHW will be limited to times when the work can be conducted "in the dry," during daylight hours during very low tides. Shoreline-based excavation equipment will be always on land and will excavate when the tide is below the edge of the excavation.
- Substrate disturbance effects on prey species will be insignificant, because the existing substrate below MHHW is primarily armored shoreline. Disturbance below MHHW will be limited to the extent necessary to remove landfill waste. Forage fish are not expected to spawn in or near the action area, because suitable substrates are lacking, and eelgrass is not present.
- Impacts on water column habitat are expected to be temporary and localized, and no measurable long-term water quality effects are expected. Water quality effects are not expected to be at a level that would affect the abundance of water column prey items; therefore, these effects are considered insignificant.
- BMPs will be in place to minimize the potential for spills to occur and to minimize the effect if they do occur. These effects are therefore expected to be insignificant.

13. EFH Analysis

Essential Fish Habitat (EFH) is broadly defined by the Act (now called the Magnuson-Stevens Act or the Sustainable Fisheries Act) to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity". This language is interpreted or described in the 1997 Interim Final Rule [62 Fed. Reg. 66551, Section 600.10 Definitions] -- Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include historic areas if appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

Additional guidance for EFH analyses can be found at the NOAA Fisheries web site under the Sustainable Fisheries Division.

A. Description of the Proposed Action (may refer to BA project description)

See description of proposed work in Section 5 of this biological evaluation.

B. Addresses EFH for Appropriate Fisheries Management Plans (FMP)

The action area includes areas designated as essential fish habitat (EFH) for various life-history stages of Pacific salmon, Pacific Coast groundfish, and coastal pelagic species. The Pacific Fishery Management Council described and identified EFH for Pacific Coast groundfish (PFMC 2021a), Pacific salmon (PFMC 2021b), and coastal pelagic species (PFMC 2021c).

C. Effects of the Proposed Action

i. Effects on EFH (groundfish, coastal pelagic, and salmon EFH should be discussed separately)

Pacific Coast Groundfish

Forty-six groundfish species are known to occur in the vicinity of the Puget Sound. Work below MHHW will occur during low tide below the MHHW line to avoid in-water work. No eelgrass habitat or forage fish spawning areas are located within the proposed project site. Potential project effects on essential groundfish habitat will be minimal and discountable. Therefore, it is concluded that the proposed project will have **no effect** on groundfish EFH.

Coastal Pelagic

The coastal pelagic species fishery includes four finfish (Pacific sardine, Pacific [chub] mackerel, northern anchovy, and jack mackerel), and market squid. Coastal pelagic fish use deeper waters than the Padilla Bay inner lagoon where the project is located. Work below MHHW will occur during low tide below the MHHW line to avoid in-water work. No eelgrass habitat or forage fish spawning areas are located within the proposed project site. Potential project effects on coastal pelagic habitat will be minimal and discountable. Therefore, it is concluded that the proposed project will have **no effect** on coastal pelagic EFH.

Pacific Salmon

Managed salmon species include Chinook salmon, coho salmon and Puget Sound pink salmon. Work below MHHW will occur during low tide below the MHHW line to avoid in-water work. No eelgrass habitat or forage fish spawning areas are located within the proposed project site. Potential project effects on salmon habitat will be minimal and discountable, as discussed in Section 9.G of this biological evaluation. The availability of waters and substrate necessary to support the contribution of these managed species to a healthy ecosystem will not be changed. Therefore, it is concluded that the proposed project will **not adversely affect** pacific salmon EFH.

ii. Effects on Managed Species (unless effects to an individual species are unique, it is not necessary to discuss adverse effects on a species-by species basis)

There are no unique effects on an individual species as a result of this project. At the completion of the landfill regrading and placement of the cap system and topsoil, the HTL elevation will move horizontally toward the upland such that new wetted area of the Padilla Bay inner lagoon will be created because the reshaped shoreline will be topographically flatter than the existing steep shoreline. The creation of additional area below HTL will result in long-term indirect effects on aquatic species and their habitats through the creation of improved habitat suitable for natural colonization by marsh plants from the adjacent estuarine marsh. The expansion of area below HTL would result in the potential expansion of juvenile salmonid rearing habitat and an expansion of designated critical habitat for Puget Sound ESU

Chinook salmon. Long-term indirect effects on managed species that may result from the project include improved water quality being discharged from the project site due to the newly installed GCLL cap. Other long-term indirect effects will include the removal of concrete and anthropogenic debris and invasive species from the shoreline and planting of native plant species, which will result in improved habitat for the wildlife that access the site for foraging material, as well as improved water quality functions of the re-created/restored wetlands on-site.

Project impacts on riparian habitat were assessed using the NOAA Fisheries Nearshore Habitat Conservation Calculator. Nearshore habitat functional values and habitat impacts at the project site were assessed for the area 130 feet landward of the highest astronomical tide (elevation 10.7 feet MLLW) as utilized in the nearshore calculator. Within 130 feet landward of the highest astronomical tide, the project site currently contains approximately 299,534 square feet of degraded riparian habitat, including steeply sloped banks partially covered with concrete and anthropogenic debris. Post-construction, this area will include gently graded slopes more conducive to supporting fish and wildlife habitat functions, given the removal of concrete and anthropogenic debris, flattened slopes, and the on-site mitigation with planted native shrub vegetation. As a result, riparian habitat quality will be increased by 64 percent, from an initial weighted average habitat value of 0.08 to a post-construction value of 0.14. To further quantify the nearshore habitat, the nearshore calculator expresses the functional loss or gain of ecosystem services in terms of DSAYs. The nearshore calculator indicates the post-construction conditions, including proposed shoreline mitigation, generate 34.72 DSAYs.

iii. Effects on Associated Species, Including Prey Species

The effects on associated species are anticipated to be similar to those described above for managed species.

iv. Cumulative Effects

This project includes construction in previously developed areas and shoreline surrounding Padilla Bay, a heavily industrialized area. Cumulative effects from the project are anticipated to be long-term and beneficial. The cleanup of the landfill is part of a regional effort by Ecology to improve the environmental quality of Puget Sound. The March Point Landfill cleanup is one of eleven sites within Fidalgo and Padilla Bays that are being cleaned up under the Puget Sound Initiative. The focus of these cleanups is to restore and protect nearshore critical habitat on a bay-wide or watershed basis. The project mitigation is designed to enhance the function of the shoreline for aquatic biota. The goals of the wetland creation/restoration element of project mitigation are to create/restore estuarine wetland as compensatory mitigation for permanent impacts on estuarine wetlands; provide a net improvement in wetland functions on the site (particularly through increasing available estuarine wetland habitat including for great blue heron foraging); and providing permanent protection of the wetland mitigation area through fencing and signs. Additional project benefits will include an expansion of juvenile salmonid rearing habitat and an expansion of designated critical habitat for Puget Sound ESU Chinook salmon and Coastal-Puget Sound DPS bull trout.

D. Proposed Conservation Measures

Project conservation measures to minimize project impacts are described in Section 11 of this biological evaluation.

E. Conclusions by EFH (taking into account proposed conservation measures)

This project will have **no effect** on Pacific Coast groundfish or coastal pelagic species EFH. This project will **not adversely affect** managed salmon species EFH.

14. References:

Include any studies or papers that support statements made in this form (example: reference the source for the listed species that are covered).

61 Federal Register 26257. 1996. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for the Marbled Murrelet. No. 102. 26256-26320. May 24. Available at: https://www.govinfo.gov/content/pkg/FR-1996-05-24/pdf/96-12647.pdf. Accessed August 2, 2021.

70 Federal Register 52630. 2005. Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho. No. 170. 52629-52858. September 2. Available at: https://www.govinfo.gov/content/pkg/FR-2005-09-02/pdf/05-16391.pdf. Accessed August 2, 2021.

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———. 2021c. Fact Sheet: Coastal Pelagic Species. Available at: https://www.pcouncil.org/fact-sheet-coastal-pelagic-species/. Accessed on August 5, 2021.

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15. Appendices:

As needed include mitigation, revegetation plans, monitoring plans, results of studies, water quality information, etc.

Sheet 1	Vicinity Map
Sheet 2	Project Site Map
Sheet 3	Cross Section Detail
Sheet 4	Proposed Vegetation Detail and Landfill Cap Detail
Sheet 5	Proposed Habitat Areas
Sheet 6	Project Action Area

Appendix A	Site Photographs

Drawings

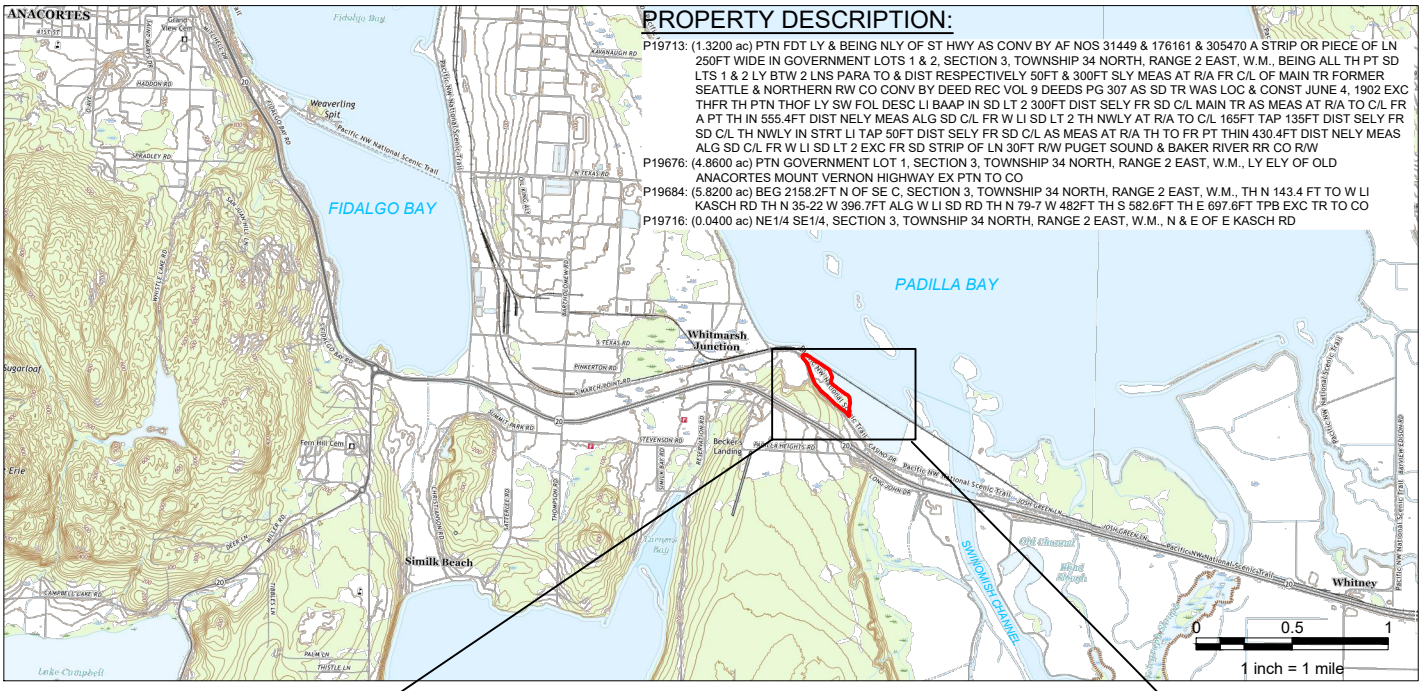
PROPERTY DESCRIPTION:

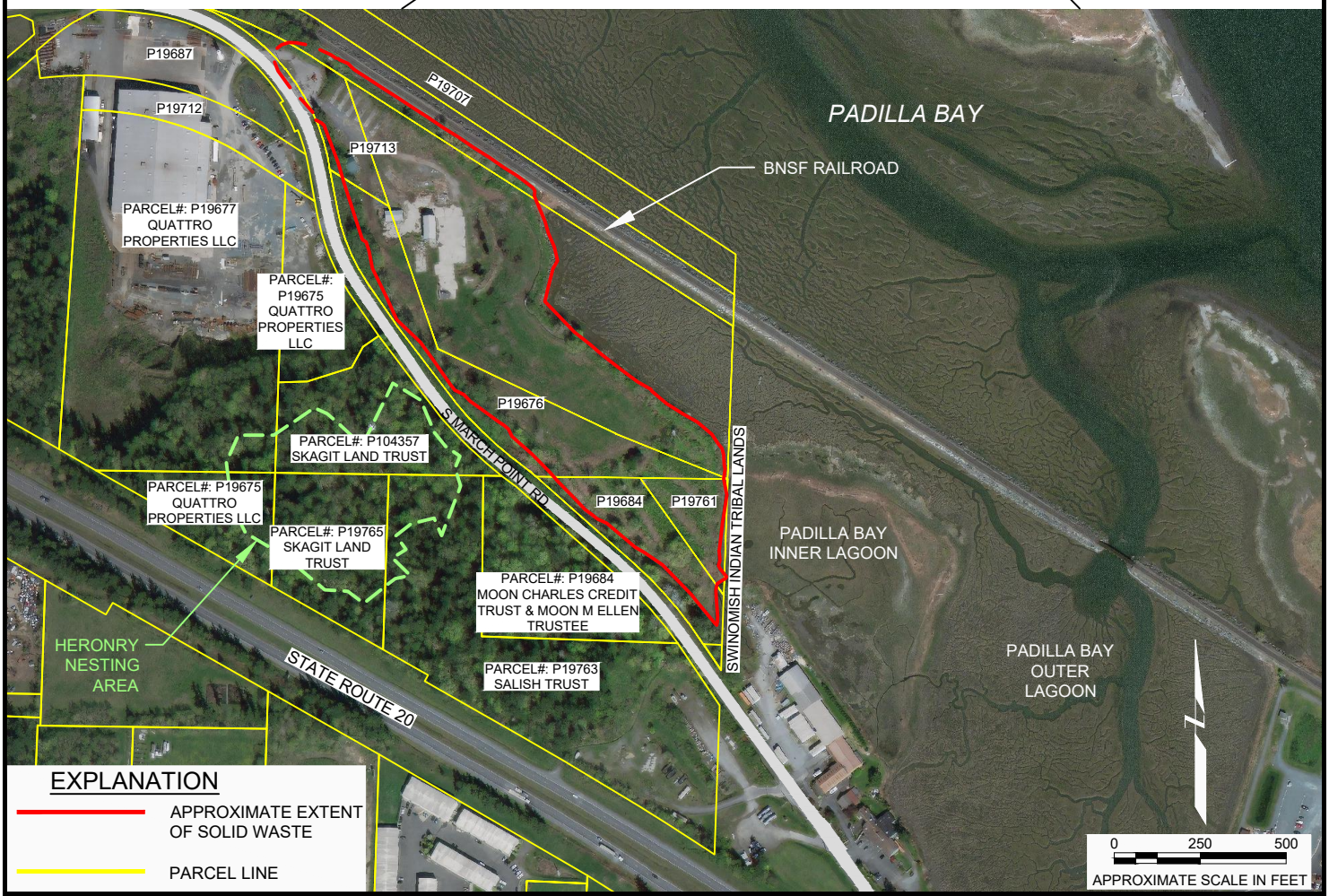
P19713: (1.3200 ac) PTN FDT LY & BEING NLY OF ST HWY AS CONV BY AF NOS 31449 & 176161 & 305470 A STRIP OR PIECE OF LN 250FT WIDE IN GOVERNMENT LOTS 1 & 2, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., BEING ALL TH PT SD LTS 1 & 2 LY BTW 2 LNS PARA TO & DIST RESPECTIVELY 50FT & 300FT SLY MEAS AT R/A FR C/L OF MAIN TR FORMER SEATTLE & NORTHERN RW CO CONV BY DEED REC VOL 9 DEEDS PG 307 AS SD TR WAS LOC & CONST JUNE 4, 1902 EXC THFR TH PTN THOF LY SW FOL DESC LI BAAP IN SD LT 2 300FT DIST SELY FR SD C/L MAIN TR AS MEAS AT R/A TO C/L FR A PT TH IN 555.4FT DIST NELY MEAS ALG SD C/L FR W LI SD LT 2 TH NWLY AT R/A TO C/L 165FT TAP 135FT DIST SELY FR SD C/L TH NWLY IN STRT LI TAP 50FT DIST SELY FR SD C/L AS MEAS AT R/A TH TO FR PT THIN 430.4FT DIST NELY MEAS ALG SD C/L FR W LI SD LT 2 EXC FR SD STRIP OF LN 30FT R/W PUGET SOUND & BAKER RIVER RR CO R/W

P19676: (4.8600 ac) PTN GOVERNMENT LOT 1, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., LY ELY OF OLD ANACORTES MOUNT VERNON HIGHWAY EX PTN TO CO

P19684: (5.8200 ac) BEG 2158.2FT N OF SE C, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., TH N 143.4 FT TO W LI KASCH RD TH N 35-22 W 396.7FT ALG W LI SD RD TH N 79-7 W 482FT TH S 582.6FT TH E 697.6FT TPB EXC TR TO CO

P19716: (0.0400 ac) NE1/4 SE1/4, SECTION 3, TOWNSHIP 34 NORTH, RANGE 2 EAST, W.M., N & E OF E KASCH RD





REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

ADJACENT PROPERTY OWNERS:

1. DNR	P19707
2. Quattro Properties: P19687, P19712, P19677, P19675	
3. Skagit Land Trust:	P104357
4. Salish Trust:	P119763
5. Swinomish Indian Tribal Cummunity:	P124181
6. Charles Moon Credit Trust:	P19684

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

LAT/LONG: 48.46275236°N / 122.52989635°W

SHEET 1 DATE: 10-06-2021

PROPOSED PROJECT:
MARCH POINT LANDFILL SITE CLEANUP ACTION

VICINITY MAP

IN: PADILLA BAY
NEAR/AT: CITY OF ANACORTES
COUNTY: ANACORTES
STATE: WASHINGTON

DRAWN BY: APS CHECKED BY: TLP

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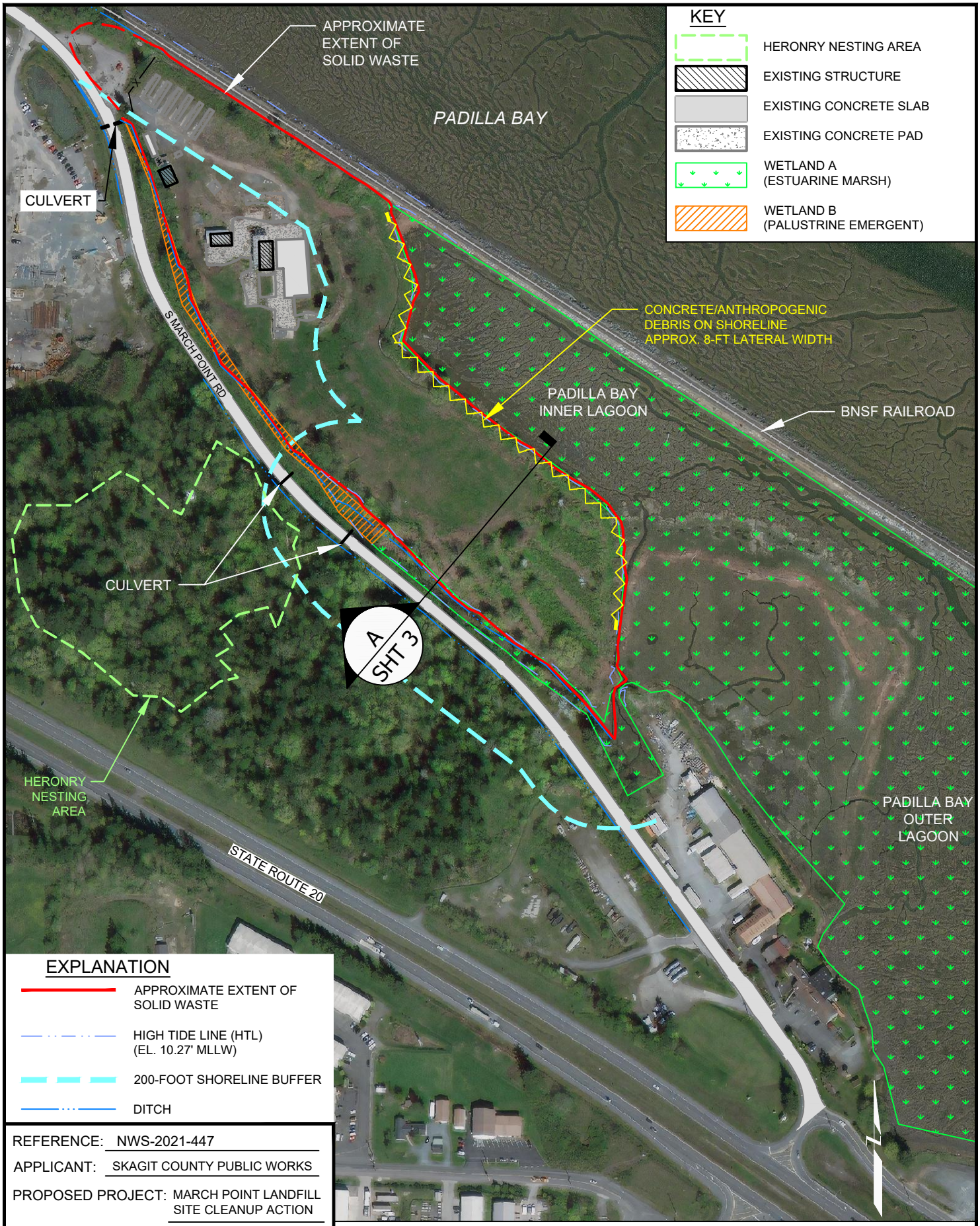

REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 2 DATE: 10-06-2021

DRAWN BY: APS CHECKED BY: TLP

PROJECT SITE MAP

0 150 300
APPROXIMATE SCALE IN FEET

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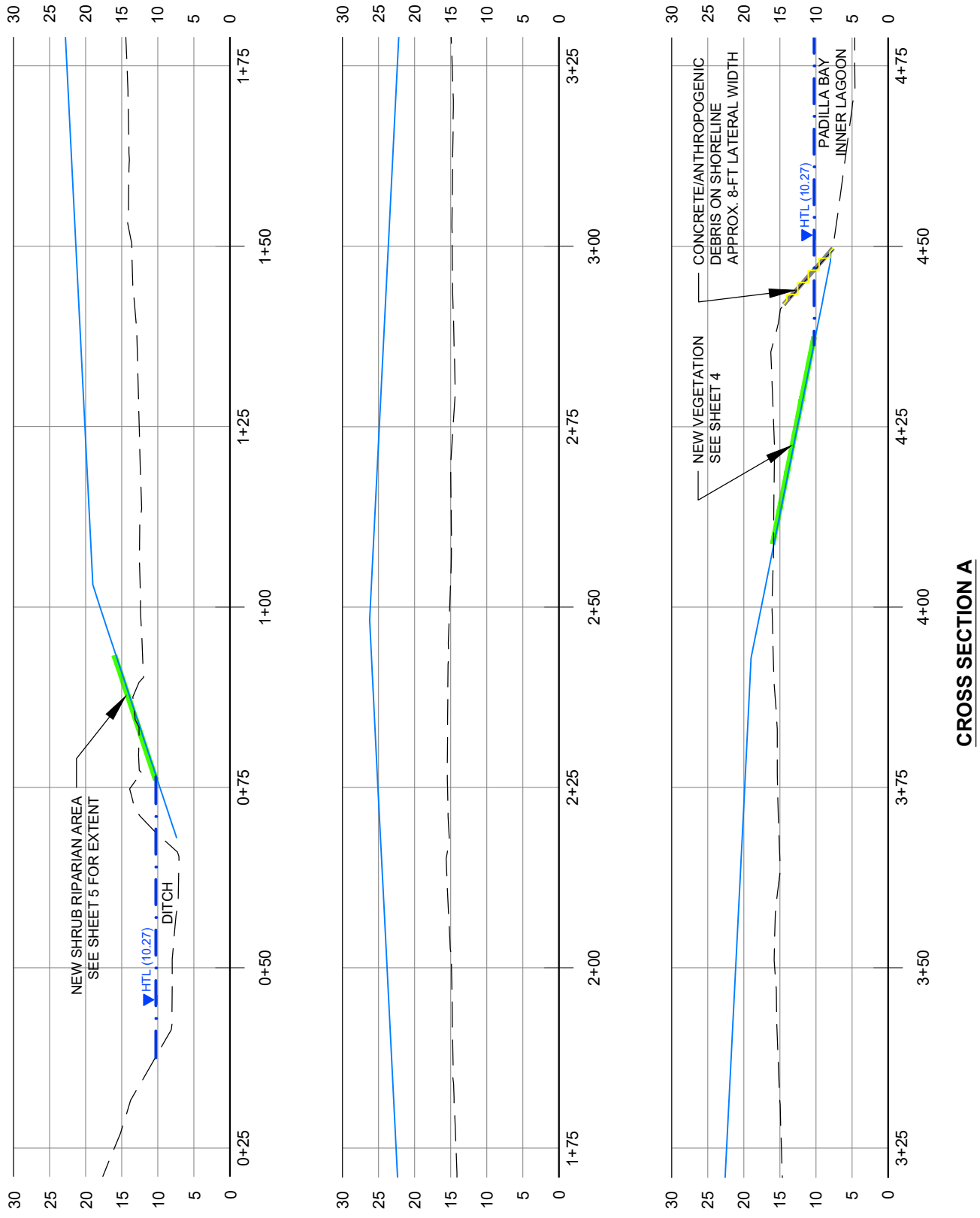

CROSS SECTION A

CROSS SECTION EXPLANATION

EXISTING GRADE

PROPOSED FINAL GRADE

HIGH TIDE LINE (HTL) (EL. 10.27 MLLW)

APPROXIMATE SCALE IN FEET

0 10 20

REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 3 DATE: 10-06-2021

CROSS SECTION DETAIL

DRAWN BY: APS CHECKED BY: TLP

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DRAWN BY: APS CHECKED BY: TLP

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REFERENCE: NWS-2021-447

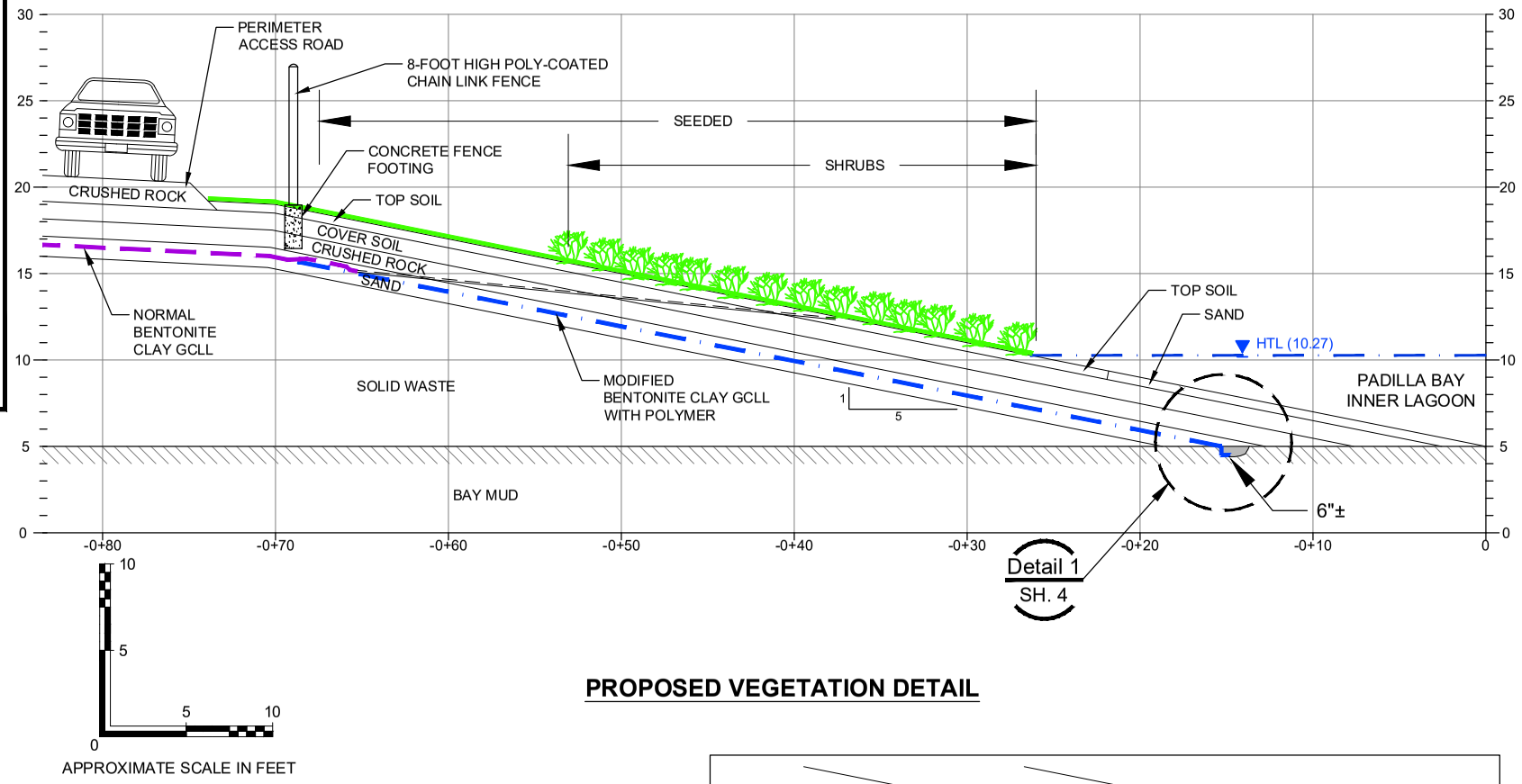
APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

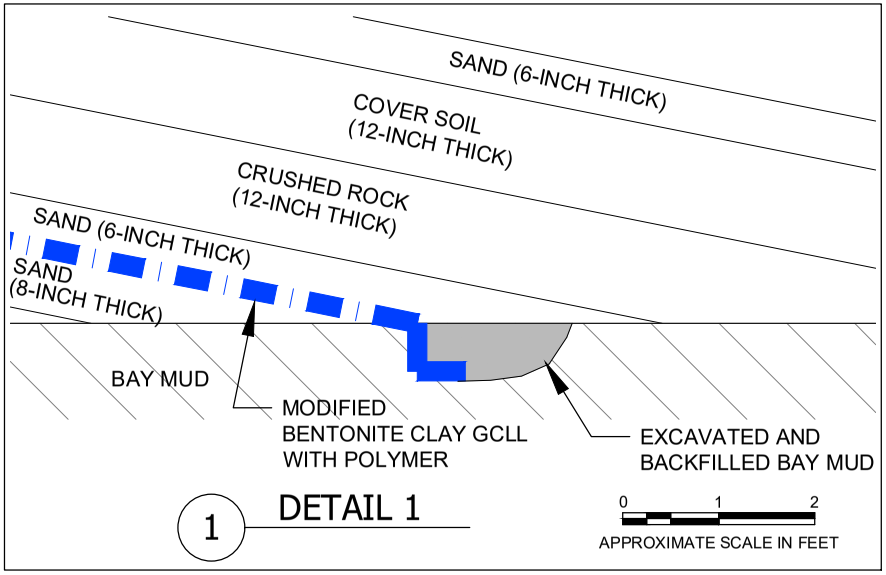
SHEET 4 DATE: 10-06-2021

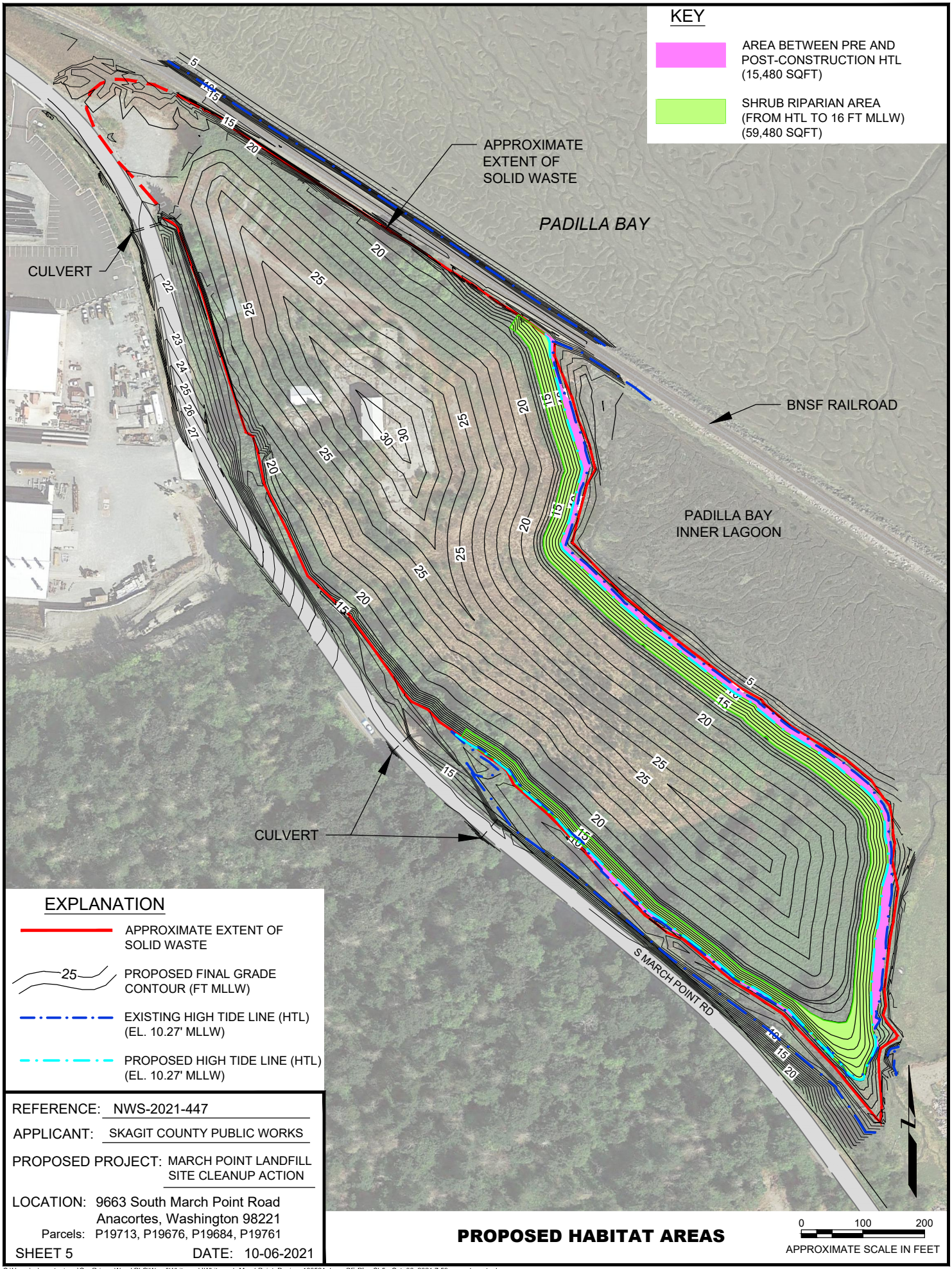
PROPOSED VEGETATION DETAIL AND LANDFILL CAP DETAIL



APPROXIMATE SCALE IN FEET

PROPOSED VEGETATION DETAIL





REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 5 DATE: 10-06-2021

PROPOSED HABITAT AREAS

DRAWN BY: APS CHECKED BY: TLP

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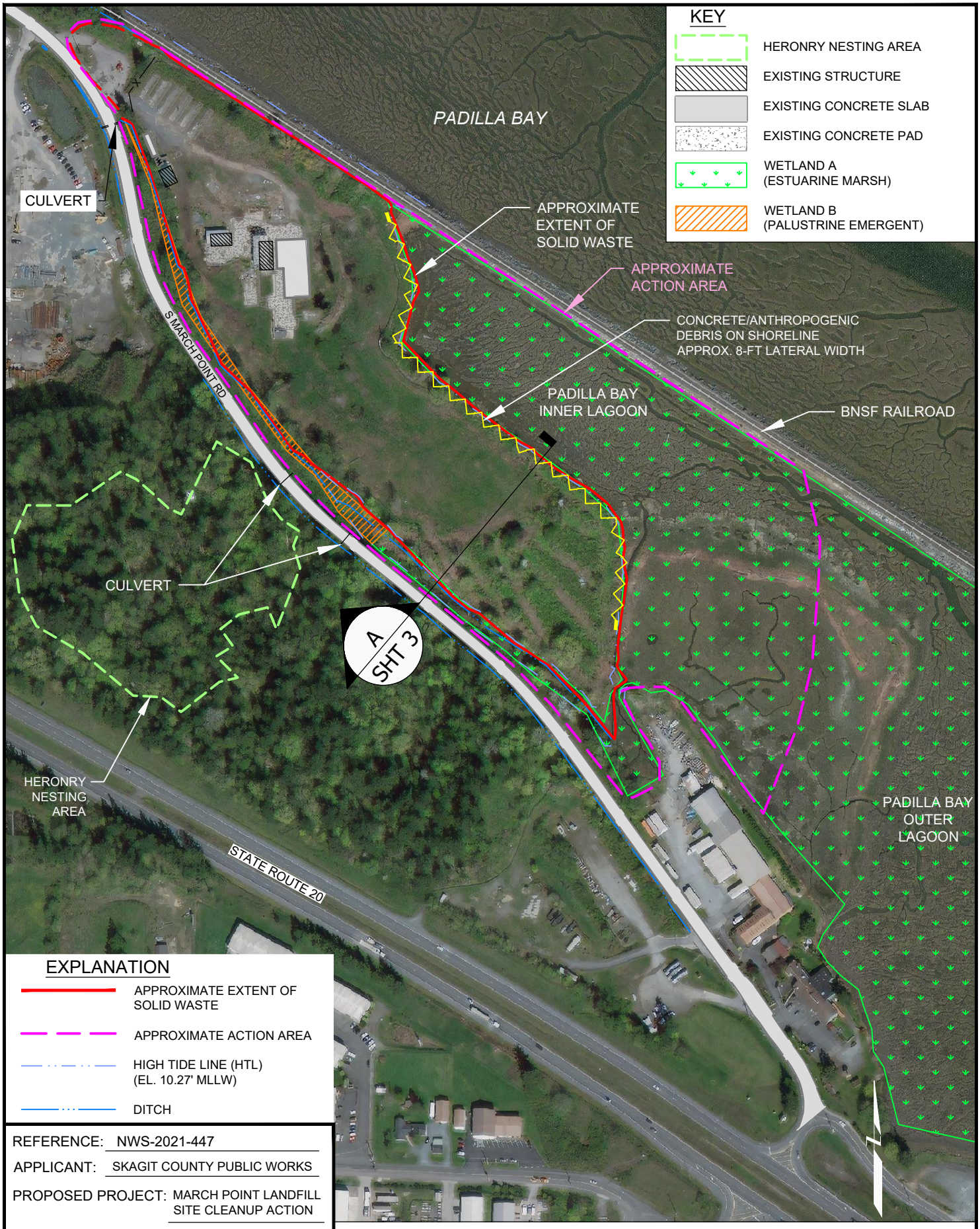

REFERENCE: NWS-2021-447

APPLICANT: SKAGIT COUNTY PUBLIC WORKS

PROPOSED PROJECT: MARCH POINT LANDFILL SITE CLEANUP ACTION

LOCATION: 9663 South March Point Road
Anacortes, Washington 98221
Parcels: P19713, P19676, P19684, P19761

SHEET 6 DATE: 10-06-2021

DRAWN BY: APS CHECKED BY: TLP

PROJECT ACTION AREA

0 150 300
APPROXIMATE SCALE IN FEET

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Appendix A

Site Photographs

Appendix A. Whitmarsh Landfill Project Site Photographs

Photo 1 The project site following vegetation removal. View towards the eastern half of the project site.

Photo 2 The project site following vegetation removal. View towards the western half of the project site. Adjacent to the project site is the Padilla Bay inner lagoon area.

Photo 3 View of Wetland B (palustrine emergent) associated with ditch (western half) along the southern edge of the project site.

Photo 4 View of Wetland B (palustrine emergent) associated with ditch (eastern half) along the southern edge of the project site.

Photo 5 Looking towards the northwestern portion of Wetland A (estuarine marsh) of the project site along the Padilla Bay inner lagoon shoreline.

Photo 6 Looking towards the southeastern portion Wetland A (estuarine marsh) of the project site along the Padilla Bay inner lagoon shoreline.

Photo 7 View of Wetland A (estuarine marsh) located at most eastern portion of the project site along the Padilla Bay inner lagoon.

Photo 8 View of tidally influenced Wetland A (estuarine marsh) of the Padilla bay inner lagoon located along the eastern portion of the project site.

Photo 9 View of adjacent heronry located on the south side of March Point Road.

Wood Environment & Infrastructure Solutions, Inc.
3500 188th Street SW, Suite 600
Lynnwood, Washington 98037
USA
T: 425-921-4000
www.woodplc.com

Memo

To:	Daisy Douglass, USACE, Regulatory Seattle District	Project:	NWS-2021-477
From:	Theresa Price, Wood	c:	Koorus Tahghighi, Wood
Tel:	480-236-5087		Cliff Whitmus, Wood
			Project File
Date:	October 12, 2021		

Subject: **High Tide Line Determination for Clean Water Act Section 404**
Whitmarsh Landfill Site, Skagit County

Background

In a previous email dated May 16, 2021, the USACE had provided guidance jurisdictional lines in tidal waters to include the following:

- Under Section 10 of the Rivers and Harbors Act the Corps regulates work and/or structures at, waterward, above the plane, and below the plane of the jurisdictional line, in tidal waters the jurisdictional line is mean high water (MHW).
- Under Section 404 of the Clean Water Act the Corps regulates discharges of dredged and/or fill material at and waterward of the jurisdictional line, in tidal waters the jurisdictional line is high tide line (HTL).

In addition, the USACE provided the definitions and processes in Corps regulations, such as the HTL definition at 33 C.F.R. § 328.3, that continue to apply to pending and future permit applications in which jurisdictional determinations are made. Seattle District will locate the HTL through case/location-specific consideration of the factors identified in the definition at 33 C.F.R. § 328.3(d).

For determination of the HTL, the USACE listed several information sources used by the USACE, including but not limited to the annual highest predicted tides over a 10-year period into the future, and physical indicators observed at the site.

Whitmarsh Landfill Site

The nearest NOAA tidal station is the Swinomish, WA (9448682), located approximately 3,300 feet west of the site, on the Swinomish Channel. Based on data for this NOAA tidal station, the average highest predicted tide for each year from 2021 to 2031 is 10.27 ft MLLW.

A field survey was conducted at the site to document shoreline conditions, including ordinary high water and wetlands. Based on the field observations from the survey, the physical indicators of high tide

line/ordinary high water along the shoreline were highly variable and a discrete/consistent ordinary high water line was not observed. Physical indicators observed at the site included, at various locations, water marks, persistent salt-tolerant vegetation, marine algae, and staining of iron rich sediment. Elevations of the ordinary high water based on these characteristics ranged from approximately 8.2 to 9.4 ft MLLW.

Given the variability of the field observations, we propose to use the 10-year average annual highest predicted tide elevation of 10.27 ft MLLW as the HTL for the site.

We respectfully request your review of this information and concurrence with the HTL at 10.27 ft MLLW, as shown in the current JARPA Form and drawings.

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